# San Jose's Sustainable City Programs

# Draft Status Report - June 1998


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CAPITAL OF SILICON VALLEY

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**San Jose's Sustainable City Programs**
**Status Report**

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## EXECUTIVE SUMMARY

In August of 1994, San Jose's City Council adopted San Jose 2020 as its general plan. Included within the plan was a new Strategy entitled the "Sustainable City Major Strategy." The Sustainable City Major Strategy is a statement of San Jose's desire to become an environmentally and economically sustainable city. A "sustainable city" is a city designed, constructed, and operated to efficiently use its natural resources, minimize waste, and to manage and conserve them for the use of present and future generations.

The City of San Jose is working to become an environmentally and economically sustainable city, one characterized by responsive and efficient policies and programs, and by successful public-private partnerships. The City's Sustainable City Major Strategy and environmental policies and programs are based on the premise that natural resources are not inexhaustible commodities to be exploited but are limited assets which should be wisely managed for the benefit of present and future generations. By planning for urban sustainability, the City of San Jose aims to promote resource efficient land use, transportation, energy and water use, and resource conservation.

### San Jose's Sustainable City Status Report

In 1980, a report was prepared for City Council that identified public policy issues in natural resource management, and presented recommendations for directions for the City to take that would improve the efficiency and economy of the City's and the community's handling and use of these resources. Entitled "Toward a Sustainable City", this report, and the subsequent actions taken by City Council to implement some of these recommendations, laid the groundwork for the efforts, successes, and lessons learned, within our City.

The adoption of that report by the City Council began what is now almost a seventeen-year journey towards becoming a Sustainable City. A journey that was built on the major sources of power held by a City government to shape its environment. These sources included resource decisions on Energy Systems, Land Use Patterns, Communication, Transportation, Water Systems and Waste Systems.

The City of San Jose has used a broad array of policy, fiscal, administrative and program tools to create and maintain its sustainability initiatives. Examples abound throughout the city departments and offices, from watershed management, economic development, to community education and environmental compliance and legislative advocacy. This report presents a status on the policies and programs that contribute to San Jose as a Sustainable City. This report is an initial documentation of the City's programs, policies and activities that contribute to San Jose as a Sustainable City. The City should be proud of the variety of programs that have been initiated and supported within the city departments and the community.

### Achievements of Environmental Programs

The following represents just a few of the achievements of the City's programs that support the Sustainable City Major Strategy.

- Jobs/housing balance and transit oriented development policies within the General Plan improve energy efficiency and air quality by reducing traffic congestion, shortening trip lengths and increasing the availability and convenience of alternate modes of transportation.
- The Intensification Corridors Special Strategy will promote vigorous economic growth by allowing more intensive commercial and industrial development on scarce land particularly in northern and central San Jose.
- Implementation of the Riparian Corridor Policy Study will help preserve the existing, limited wildlife habitat within the City and preserve an open space and recreational resource.
- In 1997 the San Jose/Santa Clara Water Pollution Control Plant treated over 50 billion gallons (139 mgd) of wastewater, and removed over 94 million pounds of solids (258,600 lb/day) and 88 million pounds of BOD (257,000 lb/day).
- By the close of fiscal year 96/97, the City's water efficiency programs had achieved the flow reduction goal of 15 mgd from the 1986 conservation plan and 1991 Action Plan. More than 5 mgd of this reduction was completed during the last three years of that period and occurred during a time of tremendous regional growth. Water use rates continue to remain below baseline levels in 1987.
- The Recycle Plus program met all of the California AB 939 requirements in 1995 and is currently well on its way to meeting the 2000 goal of 50%. In 1996 recycling was at 44% for the City as a whole.
- The new Recycle-At-Work program has resulted in a reduction of garbage service needs by half at City Hall and the Police Administration Building, thereby reducing the amount of garbage sent to the landfill by 60 cubic yards per week
- The City's policy to purchase recycled products saves the city $10,000 a year just from recycling of laser-printer toner cartridges. Each ton of recycled paper saves 4,200 kWh of electricity, 17 trees, and 7,000 gallons of water. On a yearly basis, by purchasing recycled paper the city avoids the emission of 6,300 lbs. of $CO_2$, 10,500 lbs. $No_X$, and 24,360 lbs. $SO_2$.
- A municipal cost avoidance of approximately $3 plus million per year in utility expenditures occurs as a result of the projects completed since the initiation of the energy efficiency projects. Annual bill savings of approximately $315,000 by General Services have been accomplished in existing facilities by conserving 3.5 million kWh and 300,000 therms of natural gas per year.
- The Traffic Signal Management Project is estimated to reduce vehicle operating costs by $25 million annually. This effectively reduces the estimated fuel usage by 7.5 million gallons, resulting in a reduction in the emission of carbon monoxide (1,700 tons/year), hydrocarbons (115 tons/year), and nitrous oxide (130 tons/year). The estimated reduction in stops and delays is estimated at 16 percent.

**Future Opportunities**

Making continued progress towards sustainability will require a systematic evaluation of whether our actions and strategies are adequate and whether they are having the desired

effect. The opportunities exist to engage the community in a dialogue about our progress to date, an evaluation of our policies and programs, and the identification of next steps in the process. Preliminary meetings within the community have resulted in the identification of next steps on the path toward sustainability for San Jose. Those next steps include the establishment of a community process that would identify issues, develop goals and establish priorities. San Jose residents were also interested in the establishment of methods and tools, such as Sustainability indicators, that would measure the performance of the community as a whole in achieving its goals and targets.

### *Promoting A Community Dialogue on Sustainability for San Jose*

Involving the community in the analysis of development and related service issues is essential to the optimal solution of problems. Municipal investments are more likely to succeed and win public support if they are responsive to the articulated needs, concerns, and preferences of the communities. City strategies can also benefit from the knowledge and resources that local residents and institutions can themselves contribute to solving problems. At the same time, the process of issue analysis can be used to educate stakeholders about technical conditions and constraints for service delivery, such as ecosystem carrying capacities or financial constraints.

### *Establishing Sustainable Indicators*

The well being of a community or nation can be measured in many ways. Traditional measurements often analyze a single issue by itself, such as the number of new jobs in a particular community. New measurements called "Indicators of Sustainability" are designed to provide information for understanding and enhancing the relationships between the economic, energy use, environmental, and social elements inherent in long-term sustainability.

Indicators serve as valuable tools for profiling local energy consumption patterns as a sustainability benchmark. Communities such as Seattle, San Francisco, and Toronto are using indicators to gather and evaluate information on both current energy use and future alternatives for the residential, commercial, industrial and transportation sectors. This information is vital in planning for and managing the energy resources that will support sustainable development.

The role of an indicator is to make complex systems understandable or perceptible. An effective indicator or set of indicators helps a community determine where it is, where it is going, and how far it is from chosen goals. Indicators of Sustainability examine a community's long-term viability based on the degree to which its economic, environmental, and social systems are efficient and integrated.

### *Integrated Waste Management Opportunities*

Waste management technologies have developed rapidly during the '90's. Lead by European initiatives with the world's most stringent waste reduction programs, technologies now exist to drastically improve the City's input to waste disposal sites.

Waste Processing

The collection of solid waste tends to be the dominant portion of waste management program costs. Complex waste sorting schemes require specialized collection equipment and more time on the street for that equipment. In many locations, minimal source separation combined with material processing is achieving the best combination of low program cost and high diversion rate. San Jose's residential waste collection program is in the position to take advantage of this by separating its waste collection and waste processing contracts. Waste collection contracts can be used to define the most efficient and lowest cost material sorting specification that perfectly integrate with its contracted processing capacity.

ESD/IWM is reviewing a system of fee collection that creates economic incentives for haulers to take advantage of processing. Under this concept, loads of material taken to a recovery processing/recovery facility would receive a discount on City fees owed based on the recovery rate of the processor. Such a system has the potential to continuously increase the level of material diversion from the economic incentives available to haulers and processors. This only occurs when there is an open market for processing capacity. This open market is currently not in place and may require direct action by the City to create it.

The movement toward developing adequate waste processing capacity must be addressed as part of the City's master plan. As land development continues in San Jose, there are fewer and fewer sites left that are appropriate for processor siting. The City will need to move soon to secure locations for future development of processing capacity. Failing to do so may ultimately leave the City in a position of having to export waste materials to other locations for processing or disposal. Dependence on such outside sources of vital services does not support the City's sustainability.

### *Working with the Bay Area Alliance for Sustainable Development*

The President's Council for Sustainable Development (PCSD) was established in June 1993 to develop a national strategy for meeting the needs of the present without compromising the opportunities of future generations. Councilmembers included leaders from government, business, environmental, civil rights, labor and Native American organizations. For three years, the Council held public meetings at locations around the country, including here in the Bay area. Several of San Jose's Councilmembers were able to make presentations to the Council at the bay area meeting.

One of the implementation recommendations from the President's Council (PCSD) is to assist in the development of regional councils as a way to strengthen communities and enhance their role in decisions about environment, equity, natural resources and economic progress.

The Bay Area Alliance for Sustainable Development (Alliance) is a multi-stakeholder coalition which will develop and implement an action plan that will lead to a more sustainable Bay Area in the future – a Bay area where the economy continues to prosper, where environmental quality is improved and where citizens have the opportunity to share in the benefits of a quality environment and prosperous economy.

The Alliance has a leadership team representing the business, environmental, governmental and social equity sectors. The Alliance believes it may serve as a model for other communities throughout the nation because of the economic, social and environmental diversity of the Bay Area, and recognizes that its success will depend on unprecedented levels of inter-sectoral and inter-jurisdictional cooperation and collaboration.

### *Green Building Opportunities*

Green building programs are designed to promote building practices that minimize the negative environmental impacts associated with construction. They also seek to reduce the operational impacts associated with a building's continued consumption of resources. Green building programs address: energy, water conservation, building materials, indoor air quality, solid waste management and site impacts. Green building programs strive to develop and implement a comprehensive view of design and construction practices and assess their overall environmental impacts. This requires an integrated design approach where there is communication between all those involved in the process.

There are many Green Building Programs across the country that seek to minimize the environmental impacts and make buildings as efficient as possible. They have been started by local governments, Home Builders' Associations and Utilities, and other non-profit organizations.

The City of San Jose - Environmental Services Department will be holding a "Green Building Dialogue" on July 2, 1998. We anticipate up to twenty to thirty key stakeholders concerned with building issues to be invited to this dialogue.

The workshop would give participants the opportunity to determine if there is any further interest in developing a Green Building Program within the Silicon Valley area, to identify any opportunities to incorporate green building techniques and materials within proposed buildings and developments, and to identify additional information opportunities such as the establishment of an area "green building network" or coordinating a green building trade show/fair to provide more information to area builders, developers and educators.

**Summary**

San Jose has begun on the path to become a Sustainable City. This report provides a broad overview of how the City of San Jose is moving down the path towards sustainability. Embarking on the path toward sustainability has taken, and will continue

to take the commitment of our elected officials, staff innovation and dedication, ongoing evaluation and research, community partnerships and public education and involvement.

## INTRODUCTION

What does it mean for a city to be "Sustainable"? How does one define sustainability? Many definitions are circulating these days on Sustainability. In 1989, the Organization for Economic Cooperation and Development concluded that they should not spend much time on the issue because there were at least 64 definitions already. Most concise, and most often used: *"Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs,"* taken from the Brundtland Report-Our Common Future

What then, in practical terms, does this mean for a local government? Our present urban system draws resources from the environment, many of them non-renewable, and often destroys the earth's ability to regenerate key resources. In the process of using these resources, we often return contaminated residues that are detrimental to the environment and our health. Although the structure of the modern urban system is designed to enhance the quality of life, it is not in balance and is not sustainable.

A commitment to sustainability is a commitment to more responsible environmental decision making. Planning for urban sustainability involves examining all impacts of decisions made today - and examining them with a view toward tomorrow. Sustainability also depends upon a participatory society, involving the community in decisions on the use of limited resources.

Developing urban sustainability entails more than a local government instituting an energy management program, a comprehensive recycling program, or water conservation projects; it is a broad participatory process for a community to decide how to use its limited resources more efficiently so as to enhance the quality of life without degrading the environment. To succeed, strategies to improve the urban environment must exploit the ways cities function, so that to the extent possible, routine urban activities will enhance rather than detract from the quality of the environment.

The goal of long term sustainability is to develop a prosperous and healthful urban system which can provide for the physical, social, economic and psychological needs of its population, and, at the same time, reverse the trends of increasing pollution and environmental degradation now threatening the quality of life. By conserving natural resources and preserving San Jose's natural living environment, the concept of sustainability becomes a means of encouraging and supporting a stronger economy and improving the quality of life for all who live and work in San Jose. The successful creation of a more sustainable urban form will also help ensure that the City is able to maintain the infrastructure and services necessary to maintain San Jose's economy and quality of life.

For San Jose, sustainability means finding ways to reverse the harmful effects of traffic congestion, pollution, wastefulness and environmental degradation on our urban landscape. It also means developing a healthy economy and an improved quality of life for all that live and work in San Jose.

San Jose has begun on the path to become a Sustainable City. Embarking on the path toward sustainability has taken, and will continue to take the commitment of our elected officials, staff innovation and dedication, ongoing evaluation and research, community partnerships and public education and involvement.

# I. HISTORICAL, NATURAL AND POLICY PERSPECTIVES

## San Jose's Natural Environment

The City of San Jose, California is located at the easterly side of the Santa Clara Valley. To the southwest, the Valley gives way to the Santa Cruz Mountains, while the eastern edge of the Valley consists of the Diablo Range. The City of San Jose encompasses approximately 173 square miles, has an estimated population of more than 850,000, and is projected to grow to over 1 million by the year 2010. It is the third largest City within California, and the eleventh largest in the United States.

The natural communities in the region range from salt water and fresh water marshes to scrub brush, foothill woodlands and coniferous forest. The hillsides surrounding the City are an extensive land resource devoted to non-urban uses such as watershed, rangelands and wildlife habitat.

The hills and mountains around the Santa Clara Valley are the source of numerous perennial and intermittent streams. Major waterways include Los Gatos Creek, Guadalupe River and Coyote River. Permanent bodies of water include several reservoirs and the San Francisco Bay.

These streams and other bodies of water are important environmental features for the City and the region. Equally important is the quality of the water carried or contained by the features and the preservation of the special lands or ecosystems that are an integral part of these features. The San Francisco Bay and adjacent marshlands are particularly important to the region.

## Toward A Sustainable City: Laying the Groundwork

In 1980, a report was prepared for City Council that identified public policy issues in natural resource management, and presented recommendations for directions for the City to take that would improve the efficiency and economy of the City's and the community's handling and use of these resources. Entitled "Toward a Sustainable City", this report, and the subsequent actions taken by City Council to implement some of these recommendations, laid the groundwork for the efforts, successes, and lessons learned, within our City.

The Report outlined several values that were held by the City:

- Recognition of the physical and environmental limits to the construction of man made systems;
- Recognition that a City's health, safety and prosperity in the near turn, and in the future, depends on a better approach to the management of our natural resources. An approach that combines innovation and improved efficiency; and

- Recognition that the earth, air, water and living biosphere are the collective heritage of mankind. That much of what is being consumed by current generations will not be available to future generations. *"We do not inherit the earth from our ancestors, we borrow it from our children."*

The adoption of that report by the City Council began what is now almost a seventeen-year journey towards becoming a Sustainable City. A journey that was built on the major sources of power held by a City government to shape its environment. These sources included resource decisions on Energy Systems, Land Use Patterns, Communication, Transportation, Water Systems and Waste Systems.

Initial steps taken by the City Council included the creation of an energy office, and an initial program to replace the mercury vapor lamps in all the streetlights with low-pressure sodium fixtures that used half the electricity. Result: a $1.5 million drop in San Jose's annual energy bill.

A second step was the creation of a comprehensive water conservation program to distribute free low-flow showerheads and other conservation devices throughout San Jose. The results of this program reduced flows to the sewer plant, helping to buy time for much needed improvements to the Water Pollution Control Plant.

A third campaign cleared the way for recycling. With the cost of garbage collection and disposal rising, the City opened a second landfill, and separated the garbage contract into two parts: one agreement for collection, the other for final landfill disposal. After a bid for the contracts, the winning bids totaled nearly $6 million less per year than the City had been paying. Half of the savings were used to create a variety of recycling programs.

In 1986, recognizing the interconnectedness of a broad range of environmental issues, San Jose combined its energy, water, and solid waste programs and created the Office of Environmental Management (OEM), located in the City Manager's office. The expanded office also had an environmental protection staff that focused on toxics and other pollution problems.

More recently, after an assessment of the environmental issues and concerns facing the city, City Council approved the creation of the Environmental Services Department (ESD). This action was taken in response to a report by the City Administration that laid out in some detail the City's desire to maintain its environmental leadership nationally; to develop its capacity to respond quickly and comprehensively to emerging environmental initiatives and pressures; to clarify organizational authority over the implementation of comprehensive programs; and in general to support efforts to change and improve the City's operations through a retooling of its services. The Environmental Services Department hopes to improve San Jose's ability to anticipate the direction of environmental issues, and to be more proactive than reactive to environmental pressures as they arise. ESD intends to guide the development of environmental initiatives in a more cost-effective and performance-oriented manner, and to modify and develop programs and services in a way that provides social and economic benefits in addition to environmental benefits.

## General Plan Policies

Beginning with *GP '75* (adopted March 1976), San Jose began to incorporate language in its General Plan relating to growth management, land use, urban services, and other policies that paved the way for San Jose to create a more sustainable city. These policies encouraged infill development and discouraged the sprawling suburban subdivisions that had placed tremendous pressures on City services and facilities to support far-flung, low-density residential development in the 1950s and 1960s. The City found it could not continue to provide urban services to these areas and the citizens of San Jose began to refuse to pay for bond measures to provide the infrastructure necessary to support this type of development. Something had to be done before City services deteriorated further.

New thinking was necessary to solve the problems described above and begin to manage the growth that was inevitable. The key policy decision, which began the City's long commitment to growth management and sustainability, was the 1970 Urban Development Policy (UDP). The UDP introduced the concept of an Urban Service Area (USA) and was incorporated into *GP '75* along with other related policies. In 1970, San Jose and Santa Clara County began to work together to manage growth using the USA. The USA boundary limited new urban development to those areas of the City that were already provided, or would be provided in the near future, with urban services. Lands outside the USA would remain rural and lands inside the USA would accommodate urban development. By stopping sprawl, the USA gave the City an opportunity to catch its breath from the incredible growth it sustained in the 1950s and 1960s and began to significantly reduce the consumption of land for urban development. This was the first step in San Jose's efforts to become a more sustainable city.

Over time, San Jose built on this growth management beginning and added a variety of policies designed to make the City more sustainable. Policies were developed to encourage infill development, to preserve the hillsides and other sensitive environmental areas, and to conserve natural resources. With the adoption of the *Horizon 2000 General Plan* in 1984, the City adopted five major strategies all of which have some relationship to city sustainability including the subjects of growth management, the revitalization of downtown, the conservation of neighborhoods and historic elements, and the creation of a greenbelt around the City. A series of supporting goals and policies were adopted to support these major strategies. Level of Service (LOS) policies governing the minimum acceptable level of traffic and sewage capacities for City infrastructure were developed. These LOS policies helped to ensure that new development would not overtax the City's ability to sustain adequate levels of service for existing neighborhoods. In essence, San Jose's General Plan was gradually evolving into a blueprint for sustainability.

Of particular interest in the *Horizon 2000 General Plan* was the creation of two Urban Reserves. The Urban Reserves supplemented the growth management tools of the City, particularly the Urban Service Area, by creating long-term areas set aside for eventual urbanization when the time was right. The planning for future urban development in these areas could only occur when certain criteria or prerequisite conditions were met.

This ensured that the eventual development of these areas would not occur prematurely and only when certain infill development goals were met. This continued to ensure that limited City services and resources would be devoted to existing urbanized areas and not used to serve costly development at the fringe.

In 1989, the *Horizon 2000 General Plan* incorporated a Sustainable City Strategy as a Special Implementation Program of the General Plan. The purpose of this strategy was to promote resource efficient land use, transportation, energy and water use, and resource conservation by developing a prosperous and healthful urban system. This strategy also established the goal of conserving 10% of the energy projected to be used in San Jose by the year 2000. The City is currently in the process of implementing a series of programs to achieve this goal.

In 1994, the City Council adopted the *San Jose 2020 General Plan*, which continued, and built on, the sustainable city efforts of previous General Plans by expanding and revising existing policies to more clearly encourage sustainability. To make the City's commitment to sustainability more concrete, the Sustainable City Major Strategy was added to the General Plan. This major strategy became the overarching policy statement regarding the City's planning efforts to create a more sustainable city and it identifies the major policy sections of the General Plan that support the sustainable city concept.

## Water Policy

San Jose's Water Policy Framework serves as a guide for current and future environmental actions by the City. With the adoption of the Policy Framework by City Council in September 1996, the City has an integrated, comprehensive guide that decisionmakers can use to ensure that water policies and programs are mutually reinforcing and do not conflict with one another or with other City goals, objectives and programs. This guidance will enhance the City's ability to respond effectively to water-related challenges, identify priorities for those issues and areas that are most urgently in need of further attention and allocate limited resources in the most efficient manner.

San Jose's Water Policy Framework provides background information on the historical and natural resource setting for water in San Jose. It clearly identifies current water programs within San Jose and provides a description of the regulatory and legislative setting for those activities. The current and future challenges that face our community are presented in order to understand the potential risks and threats surrounding water issues. Finally, the Framework presents recommendations for meeting those challenges as the City's proposed mission, goals and policy directions.

The Water Policy Framework helps the City by providing the structure for reviewing, developing and prioritizing annual work plans and programs that will maximize ecosystem protection. It assists the City in providing input to water resources planning efforts by the Santa Clara Valley Water District and other agencies to ensure an adequate and affordable supply of water to meet City needs. And finally, it provides a strong connection between social, political, and scientific issues.

This Framework demonstrates the City's common-sense approach to managing water-related environmental problems. This approach will equitably balance the sometimes-conflicting needs of urban growth, economic activity, natural habitat and endangered species protection, cost containment, and the long-term environmental quality of San Jose.

Finally, this document guides the City in developing a proactive approach to current and future regulation, and offer rational alternatives to potentially costly or narrowly focused measures. It does so by proposing more effective, scientifically supported and economical solutions that can be implemented without sacrificing ecosystem protection. In addition, the Policy Framework serves an educational purpose, by identifying key issues and challenges that face our community, and by encouraging and proposing collaborative efforts to meet water-related challenges.

Development of the Water Policy Framework was achieved through a comprehensive stakeholder input process involving City departments, key external stakeholders, and from members of the public. The Framework will be reviewed on an annual basis in order to report on the implementation and achievement of the adopted policies, and determine any necessary changes

## Integrated Waste Management Policies

The City's integrated waste management diversion policies were first adopted by the City Council in October 1983. The original policies were based on goals stated in the General Plan and included: providing the highest quality of services at the lowest cost to the rate payers; using financial incentives to minimize waste and maximize recycling; and managing landfills to conserve capacity and guarantee City control over the use of facilities. In 1991, the City Council reaffirmed their commitment to these policies during the Request for Proposal (RFP) process for the Recycle Plus residential garbage and recycling system. With respect to the commercial solid waste (CSW) system, the Council approved a redesign of the system in 1994 to establish a free market, non-exclusive franchise system with the intent of increasing waste diversion through economic incentives, education, and technical assistance.

These progressive policies resulted in an integrated waste management program that is unparalleled in the country. San Jose's program has the best diversion of any large city in the United States. To date, the City has achieved an overall diversion rate of 44 percent. The residential sector alone has achieved a 48 percent diversion rate. The City's excellent residential diversion rate is due to a combination of the innovative elements on which the program is built: a variable rate structure for garbage collection and a breadth of recycled materials accepted by the program. This has been achieved while controlling costs and keeping residential rates lower than 70 percent of rates in Santa Clara County.

A key principle contributing to the success of the City's programs is competition. Over the past 15 years, the City's approach has been to rely on successive open and competitive processes to obtain the best terms for its ratepayers. For the residential programs, competition is encouraged by both periodic requests for proposals for services and dividing the City into several service districts to increase the number of proposers. Increased competition has proven to result in more responsive and innovative technical proposals for residential programs, at a lower cost to the ratepayers. For the commercial program, the free market atmosphere allows franchised haulers to compete for customers based on price and service. Fostering of competition, and a competitive environment, has been and should continue to be a paramount consideration for the City.

The revised policies continue to build on the original goals. Policies that are no longer consistent with the City's future have been deleted; namely those related to waste incineration as a disposal method. Additionally, other goals have been modified, based on what the City has learned about integrated waste management over the last 15 years, and to ensure consistency with the requirements of the California Integrated Waste Management Act.

The revised policies also incorporate several principles endorsed by Council over the last decade.

- The first is the City's commitment to competition. For the residential system this means that exclusive solid waste collection contracts will be subjected to frequent solicitations to maximize the number of potential vendors so as to ensure competitive

costs and excellent customer service. In addition, the City will continue to divide its residential service area into collection districts to encourage participation by the greatest number of proposers. For the commercial sector, the City will attempt, to the maximum extent feasible, to maintain a market-driven, non-exclusive solid waste system. This allows the flexibility and innovation of the private sector to develop waste diversion options for the heterogeneous waste stream of the commercial sector.

- Secondly, the City will demonstrate its commitment to achieving its solid waste diversion goals by instituting waste reduction, recycling, and buy-recycled practices at all City facilities and public areas within its jurisdiction.

- Finally, all solid waste diversion programs will be provided on a cost-recovery basis.

## II. SAN JOSE'S CURRENT SUSTAINABLE CITY PROGRAMS

### LAND USE AND GROWTH MANAGEMENT

The *San Jose 2020 General Plan* is the chief policy document governing land use (the type [residential, commercial, industrial, etc.] and intensity of development) as well as the timing and location of urban development (i.e., growth management). The General Plan seeks to ensure that the land uses proposed in it can be adequately supported by the planned transportation system and by other support infrastructure, such as sewers and storm drains, as well as other urban services. By ensuring that city infrastructure and services can adequately support planned urban development, San Jose ensures that the City has the resources it needs to sustain the services residents and businesses need to live and prosper. This is as an important element of the sustainable city concept to ensure that resources are not overused or wasted.

The General Plan seeks to direct urban development to infill sites already provided with urban infrastructure and services to avoid the scenario described above. The preservation of existing neighborhoods and the City's housing stock is also called for in the Plan. By doing this, the City encourages the most efficient use of existing infrastructure and services and avoids costly development at the City's fringe. The General Plan also encourages more intensive development near light rail and other transit facilities to encourage transit use thus conserving energy and reducing air pollution. By allowing more intensive development, the City is able to accommodate more growth on less land thus conserving land as a resource.

In addition to ensuring that urban development is directed to where adequate services are available, the General Plan differentiates between lands that are suitable for urban development and those that are not. Currently, the General Plan identifies the hillsides of the Diablo Range and the Santa Cruz Mountains, the baylands in and around Alviso, and the agricultural lands in the southern portion of Coyote Valley as unsuitable for urban development due to a combination of environmental constraints, the excessive cost of providing and maintaining urban infrastructure and services, and the need to preserve fragile and limited natural resources (such as watersheds).

The *San Jose 2020 General Plan* uses a variety of policy tools to achieve its land use and growth management objectives. The Major Strategies, goals and policies of the General Plan all work together to achieve these objectives. The key General Plan and other policies that are used to make San Jose a more environmentally and economically sustainable city are described below.

**Summary List of Programs and Responsible Departments**

| ***Program*** | ***Responsible Department*** |
|---|---|
| 1. San Jose 2020 General Plan - Sustainable City Major Strategy | All City Departments |
| 2. The Greenline/Urban Growth Boundary | Department of Planning, Building and Code Enforcement |
| 3. The Housing Initiative | Department of Planning, Building and Code Enforcement |
| 4. Intensification Corridors | Department of Planning, Building and Code Enforcement |
| 5. Development Review Process<br>Residential, Commercial and Industrial Design Guidelines<br>Environmental Review<br>Landscape and Irrigation Guidelines | Department of Planning, Building and Code Enforcement |
| 6. Riparian Corridor Policy Study | Department of Planning, Building and Code Enforcement |

## 1. San Jose 2020 - Sustainable City Major Strategy

The Sustainable City Major Strategy is the overarching policy statement in the *San Jose 2020 General Plan* describing how San Jose plans to become a sustainable city. The strategy defines a sustainable city as "...a city designed, constructed, and operated to minimize waste, efficiently use its natural resources and to manage and conserve them for the use of present and future generations." In this strategy the City recognizes that it is part of a larger regional and global environment and that the City will both encourage and participate in cooperative/regional efforts to improve and conserve natural resources.

### *Goals*

The key goals of the Sustainable City Major Strategy include the following:

- Reduce traffic congestion, pollution, wastefulness and environmental degradation.
- Use the concept of sustainability as means to encourage and support a stronger economy and improve the quality of life for those that live and work in San Jose.
- Create a more sustainable form to help ensure that the City can adequately maintain urban infrastructure and services.
- Supports the City's goal of reducing projected energy consumption for the year 2000 by 10%.
- Creates a community that is more resistant to disasters

### *Benefits*

The Sustainable City Major Strategy identifies the programs the City operates in its efforts to move towards sustainability including recycling, waste disposal, water conservation, energy efficiency and preventative maintenance. The General Plan policies supporting efficiency in resource consumption and sustainability are also identified in the strategy. The benefits of these policies include the following:

- Building and site design policies improve energy and water use efficiency.
- Water resources policies promote conservation and protection of watershed and groundwater recharge areas.
- Air quality policies help to minimize air pollution and monitor the cumulative impacts of development on air quality.
- Land use and growth management policies promote the efficient use of land, allow the efficient delivery of urban services, prevent urban sprawl, conserve open space and preserve natural habitats.
- Jobs/housing balance and transit oriented development policies improve energy efficiency and air quality by reducing traffic congestion, shortening trip lengths and increasing the availability and convenience of alternate modes of transportation.
- Mitigates the effects of natural hazards on the community, lessening the need for disaster response and recovery, and lowering the cost of required response and recovery, by eliminating development in disaster prone areas, such as unstable hillside areas, geologic hazard zones, and the margins of the wildland interface.

### *Major Accomplishments*

The Sustainable City Major Strategy, in conjunction with the other provisions of the *San Jose 2020 General Plan*, have helped to ensure that urban development in San Jose is designed and built in a form that enhances the City's ability to provide adequate levels of urban services and ensuring the efficient use of existing infrastructure and services while protecting the natural environment to the maximum extent feasible.

In addition, natural hazards mitigation measures lessened the exposure of residents to the effects of flooding in 1995 and 1997, while geologic hazard zone regulations lessened the number of dwelling units at risk when rain saturated ground becomes unstable.

### *Lessons Learned*

The Sustainable City Major Strategy is the culmination of all the lessons learned by the City since the 1970s regarding the linkage between land use and growth management policies and the City's ability to sustain urban development. San Jose has learned to set limits to urban development so that new development does not overextend or overtax City infrastructure and services. We also learned that the City could accommodate growth without continuing costly development at the City's fringe. By continuing to focus development on infill parcels, the City can preserve the hillsides, baylands and agricultural lands from encroaching urban development while enhancing the quality of life for the City's residents and workers.

## 2. The Greenline/Urban Growth Boundary

In November 1996, the Greenline/Urban Growth Boundary (UGB) was incorporated into both the *San Jose 2020 General Plan* and a Joint Policy Statement of the City of San Jose and the County of Santa Clara. Under the General Plan, the UGB establishes the ultimate limit for the extension of urban services and the expansion of urban development in San Jose through the Greenline/Urban Growth Boundary Major Strategy and its supporting policies. The UGB separates those lands planned and reserved for urban uses from those that should remain permanently rural in character and enables the City to most efficiently provide urban services to existing and future development. Lands planned and reserved for urban uses are, or will be, able to accommodate urban development; lands that are to remain permanently rural will not accommodate urban development nor receive urban services from the City. The Joint Policy Statement reflects and reinforces the strong commitment of both the City and the County to existing growth management and open space preservation policies expressed in their General Plans.

### *Goals*

The key goals of the Greenline/Urban Growth Boundary related to the sustainable city concept include the following:

- Delineate the extent of future urban expansion and reinforce fundamental policies regarding the appropriate location of urban development.
- Promote fiscally and environmentally sustainable development in locations where the City can most efficiently provide urban services.
- Preserve substantial areas of the surrounding hillsides, baylands and other lands to conserve natural resources and protect valley floor "viewsheds".
- Protect public health and safety by preventing urban development in areas subject to natural hazards.

### *Benefits*

All existing and future residents of San Jose benefit from the Greenline/Urban Growth Boundary in the following ways:

- By limiting the area of new urban development, we ensure that this development can be effectively and efficiently served without draining resources from existing neighborhoods.
- More attention, energy and resources can be devoted to neighborhood revitalization, housing assistance, community policing, and blight eradication in existing neighborhoods.
- By avoiding development in hazardous or difficult to serve areas, the City reduces the exposure of people and property to environmental hazards and reduces the potential for damage and increased maintenance costs for infrastructure, services and service facilities.

- Wildlife habitat, watersheds and "viewsheds" are protected from the environmental damage associated with urban development and preserve the natural and open space features that make San Jose an attractive place to live and work.
- The UGB helps to preserve the unique identity of the City and avoids the gradual suburban merging of anonymous community's characteristic of large metropolitan regions.

***Major Accomplishments***

The Greenline/Urban Growth Boundary has made absolutely clear to residents, property owners, developers and others interested in the future of San Jose, what the City's long-term expectations are for urban development. The City has also adopted a procedure to ensure that the long-term integrity of the UGB is maintained and is considered for change only when a comprehensive update of the General Plan occurs. The Joint Policy Statement of the City and the County helps to achieve greater consistency between City and County land use plans and development policies for areas of mutual concern. Perhaps the greatest accomplishment of the UGB, however, is that it strengthens and expands the City's and the County's growth management policies which for the last 25 years have effectively discouraged unsustainable sprawl development.

***Lessons Learned***

The City's experience with rapid growth and urban sprawl between the 1950s and the 1970s provided hard lessons regarding the cost of urban sprawl. The City found that urban development at the City's edge, particularly residential development, did not generate sufficient revenues to cover the cost of providing urban services and infrastructure for new development. The Greenline/Urban Growth Boundary shows that this lesson has been thoroughly understood and that existing growth management policies, which have been effective in the past, can be reinforced to be made even more effective over the long-term.

## 3. Housing Initiative Special Strategy

The Housing Initiative is a special strategy contained in the Land Use/Transportation Diagram Chapter of the *San Jose 2020 General Plan* adopted in 1991. This special strategy is designed to promote the production of high-density housing and supportive mixed uses in close proximity to public transit corridors such as the Guadalupe light rail line and the major arterial streets radiating from the Downtown. Consultants prepared a three-phase study to determine the viability of high density housing in these areas which was used to guide the development of this special strategy. After extensive public review, recommendations from this study were incorporated into the General Plan and a have been used to encourage the production of new high density housing in the study area.

***Goals***

The key goals of the Housing Initiative Special Strategy include the following:

- Produce high-density housing for all income levels.
- Encourage public transit use.
- Locate housing near job centers.
- Optimize the service capacity of existing infrastructure.
- Encourage more efficient use and reuse of land.

***Benefits***

The Housing Initiative Special Strategy is one of a series of tools contained in the San Jose 2020 General Plan that are used to achieve the general benefits outlined under the Sustainable City Major Strategy. The study used to help prepare the Housing Initiative indicated that 10,000 potential high density dwelling units could be accommodated on 386 acres in the study area and that there was a potential market demand for 9,400 units by the year 2000. Given this information, the City was able to take action to preserve the housing opportunities represented in the Housing Initiative Study Area including General Plan Amendments to encourage high density housing near transit, the completion of several specific plans, such as the Midtown and Tamien Station Area Specific Plans, and the rezoning of lands consistent with new high density land use designations.

***Major Accomplishments***

The actions taken above, in addition to preserving housing opportunities, have encouraged private sector interest in developing high density housing and mixed use sites located near transit. As a result of this interest, 2,432 dwelling units have been built in the study area, another 1,565 dwelling units have been approved for construction in the near future, and 1,902 dwelling units are pending approval. This type of infill housing is exactly the type needed to achieve the City's sustainability goals since it efficiently uses existing services and facilities and it minimizes natural resource use particularly in terms of land and energy consumption.

***Lessons Learned***

The Housing Initiative Special Strategy shows that there is a demand for efficient, transit oriented, high density housing in San Jose and that the City can effectively plan for and encourage the development of those uses. To the extent that the City can continue to encourage this type of development, the City will move closer to achieving its goals under the Sustainable City Major Strategy.

## 4. Intensification Corridors Special Strategy

Intensification Corridors are areas designated under the San Jose 2020 General Plan as suitable for higher residential densities, for more intensive non-residential uses, and for mixed uses; these corridors are centered along existing or planned light rail transit (LRT) lines and/or major bus routes. This strategy seeks to reduce traffic and the environmental

and resource costs associated with extensive automobile use through encouraging a compact pattern of high-density residential and intensive mixed-use development. This special strategy builds on the experience of the Housing Initiative Special Strategy but is broader in its scope and area of application. It identifies five major transportation corridors where the special strategy applies. It describes the evolution of intensification as a series of three levels that are likely to occur over the life of the General Plan as light rail construction occurs. It also establishes development parameters that govern the intensity of development during these different levels, provides site and building design guidance to promote transit use, and considers the effects of intensification on adjacent uses. It promotes commercial and industrial intensification as well as residential intensification near transit facilities.

***Goals***

The key goals of the Intensification Corridors Special Strategy include the following:

- Acknowledge the natural tendency toward development intensification in prime urban areas.
- Channel development into areas where intensified uses and public transit will be mutually supportive and will help create vibrant pedestrian oriented neighborhoods.
- Make the most of the limited resources the City has available to provide the housing and urban services necessary to accommodate the City's growth.
- Preserve the City's natural amenities, such as open space, and reduce air pollution and traffic congestion.

***Benefits***

The benefits of the Intensification Corridors Special Strategy are very similar to the benefits described under the Housing Initiative Special Strategy but will be more extensive given the larger area of the City encompassed by this strategy, the broader range of uses, and the higher level of development density/intensity propounded. Implementing this strategy should help achieve the following key beneficial General Plan objectives:

- Promote vigorous economic growth by allowing more intensive commercial and industrial development on scarce land, particularly in northern and central San Jose.
- Create more affordable housing opportunities and shelter a growing population by increasing the housing supply.
- Maximize the carrying capacity of the existing transportation system through increased transit use.
- Promote the efficient delivery of urban services and provide a more solid fiscal base through more intensive infill development that does not require the significant extension of new infrastructure or urban services.

***Major Accomplishments***

The Intensification Corridor Special Strategy broadens the possibility for more intensive development in San Jose by identifying the areas where more intensive development should occur and the steps the City and the private sector could take to achieve this type of development. The City anticipates that over 6,000 high density residential dwelling units could be accommodated in the intensification corridors in the short-term, but the potential for such development in the longer term is considerably greater than that. The Intensification Corridors Special Strategy places the City in position to promote and shape intensification opportunities.

***Lessons Learned***

The Intensification Corridors Special Strategy is building on the success of the Housing Initiative Special Strategy and the lessons learned in implementing that strategy. Intensification Corridors are a relatively new concept in the General Plan and their full potential for successfully promoting higher intensity development of all kinds, including mixed use, will not be realized until more of the planned light rail transit system is completed. It is anticipated, however, that the full implementation of the Intensification Corridors Special Strategy will continue to show, as in the case of the Housing Initiative Special Strategy, that there is a market for more intensive types of development that are less auto dependent and more pedestrian oriented.

## 5. Development Review Process

The City's Development Review Process covers a variety of topics governing the permitting of new development. Topics of particular importance to the sustainable city

concept include the Environmental Clearance process, the three sets of design guidelines (Residential, Commercial and Industrial) used to provide guidance for site and building design, and the Landscape and Irrigation Guidelines used to help conserve water. All public and private development projects must receive some form of environmental clearance before a permit approval can be given as mandated by the California Environmental Quality Act (CEQA) and the City's Environmental Clearance Ordinance. The purpose of the environmental clearance process is to ascertain whether or not the proposed project could have a significant adverse physical effect on the environment, including the consumption of natural resources. Most new development in the City, with the exception of some conventional single-family detached residential projects, is subject to the City's design guidelines. The purpose of the design guidelines is to help ensure that new development in San Jose is high quality, functional and attractive. The Landscape and Irrigation Guidelines were developed during the drought conditions of the late 1980s but provide assistance in preparing landscape plans and irrigation systems that conserve water in times of drought or in times of normal rainfall for this relatively dry climate.

***Goals***

The key goals of the Environmental Clearance process include the following:

- Implementation of the goals and policies of the General Plan, particularly those dealing with the avoidance of natural hazards and the preservation of natural resources.
- Implementation of the General Plan's level of service policies for transportation, sanitary sewer and Water Pollution Control Plan capacity.
- Mitigation of all anticipated adverse physical impacts on the environment to the maximum extent feasible.

The key goals of the City's design guidelines relating to the sustainable city concept include the following:

- Ensure that sites and buildings are designed to be functionally and efficiently used.
- Promote the efficient use of energy.
- Minimize damage to hillsides and other natural features through proper design.
- Minimize pollutant runoff from non-point sources.

The key goals of the Landscape and Irrigation Guidelines relating to the sustainable city concept include the following:

- Reduce irrigation water consumption with no decline in landscape quality.
- Provide direction for developers and design consultants for the preparation of landscape and irrigation plans, in accordance with the City's Water Efficiency Ordinance.

***Benefits***

The Environmental Clearance process provides sufficient information to identify significant adverse effects on the physical environment. This information can be used to redesign or modify a proposed project to avoid these adverse effects prior to permit approval. By avoiding these adverse effects, the project is improved, natural resource consumption can be minimized, and the City's natural environment is better preserved. This process also prevents development from occurring in hazardous areas, such as landslide areas in the hillsides, thus preserving public safety and, also reduces the potential for damage to public infrastructure and facilities by not allowing these facilities to traverse hazardous areas.

The Design Guidelines ensure that sustainability issues are considered early in the project development stage and, therefore, make it more likely that energy and other conservation measures are incorporated into a project. In particular, these guidelines are designed to encourage transit use through site design and building orientation thus supporting other City policies promoting more efficient and compact urban development. Key sustainability Design Guidelines address some of the following issues:

- Maintaining viable solar access to maximize natural heating and cooling effects.
- Orienting buildings and site layouts to encourage transit use and more compact forms of development.
- Preserving natural amenities, such as riparian corridors, and using these amenities to enhance the design of projects.
- Preserving water quality by minimizing storm water pollution

The Landscape and Irrigation Guidelines benefit all water users in the City by reducing water consumption in landscaped areas thus allowing for more water to be available for other uses and helping to reduce the need to depend on outside sources of water. These guidelines make it easier for property owners, developers, and landscape architects to design water thrifty irrigation and landscaping schemes consistent with City expectations. By using less water, potential damage due to excessive or polluted runoff is less likely.

***Major Accomplishments***

The Environmental Clearance process, the Design Guidelines and the Landscape and Irrigation Guidelines are not designed to create single, major accomplishments but cumulatively, through a series of various and numerous development projects of all types, these processes and guidelines have helped to create a more livable and environmentally sensitive community. These processes and guidelines have been in place for a considerable period of time and have been fully integrated into the Development Review process. As these processes and guidelines continue to be used, many of their sustainability provisions are being incorporated into development projects on a routine basis.

***Lessons Learned***

The Environmental Review process has shown that development projects can be improved and made more environmentally sustainable when environmental impacts and

mitigation measures are identified early enough in the development process to allow their incorporation into the project. The Design Guidelines and Landscape and Irrigation Guidelines have shown that they can provide useful guidance early in the design process that in turn makes it easier for developers and designers to create and build more sustainable development.

## 6. Riparian Corridor Policy Study

The Riparian Corridor Policy Study establishes direction on how to implement the riparian corridor and natural stream preservation policies found in the General Plan. This study identifies and inventories each riparian corridor within the area of the City planned for urbanization (the Urban Service Area and the Urban Reserves). It discusses the importance of the riparian corridors, how they may be at risk, and how they should be protected. Development design guidelines for projects adjacent to riparian corridors are provided in the study and are designed to be used in conjunction with the City's other Design Guidelines to preserve fragile riparian habitats. The study provides the City, through the baseline inventory and a series of policy guidelines, information to identify and manage its riparian resources in an environmentally sensitive manner to protect them for environmental as well as recreational purposes.

### *Goals*

The key goals of the Riparian Corridor Policy regarding sustainability include the following:

- Support General Plan policies regarding the preservation of riparian corridors and the habitats contained in these corridors.
- Create and maintain a complete inventory and classification of the City's riparian corridors that may be affected by urban development.
- Provide design guidelines for private and public development projects within or adjacent to riparian corridors.
- Provide a framework for protecting valuable riparian resources without unreasonably limiting the economic and recreational use of adjacent lands.
- Provide a tool for developers, designers, and City staff when designing or evaluating projects that may affect riparian corridors.
- Coordinate the uses of the corridor relating to recreational facilities and storm water drainage.
- Minimize damage to riparian resources from all sources of pollution including non-point source pollutants.

### *Benefits*

Implementation of the Riparian Corridor Policy Study will help preserve the existing, limited wildlife habitat within the City and preserve an open space and recreational resource (i.e., trails and more passive types of recreation). By preserving riparian habitats, certain species are also protected by reducing the encroachment of urban development. Healthy riparian corridor vegetation can filter pollutants and reduce erosion and sedimentation thus preserving water quality. Preserving riparian corridors also incorporates open space and natural resources into the aesthetic fabric of the community by requiring urban development projects to address and, if possible, increase the attractiveness of these projects by taking advantage of these features in their designs.

### *Major Accomplishments*

A major accomplishment of the Riparian Corridor Policy Study was to increase awareness among planners, developers and property owners of the importance of preserving riparian corridors. The Policy ensures that riparian corridor preservation issues are reviewed in all projects that are adjacent to riparian corridors and has already helped to preserve riparian corridor segments from displacement by or impacts from urban development.

### *Lessons Learned*

Riparian corridors can be preserved in urbanized areas more easily when a specific policy is used to supplement General Plan policies. Further, detailed direction on riparian preservation is very helpful in achieving the goals of preservation by giving reviewers

and designers a set of guidelines upon which to evaluate development projects adjacent to riparian corridors.

## WATERSHED MANAGEMENT

Watershed management is a planning method which addresses environmental issues comprehensively and on a watershed-wide basis, and which is intended to ensure that the implementation of water-quality protection, water supply, and habitat protection programs are, at a minimum, not counter-productive and, at best, mutually reinforcing. Guided by the policies adopted within the City's Water Policy Framework, San Jose is working on several fronts to improve local natural habitats and the quality and quantity of water that is released into local watersheds and the San Francisco Bay. Much of this work entails meeting stringent State & Federal regulatory requirements on the point and non-point effluents coming from the San Jose / Santa Clara Water Pollution Control Plant, and major rivers of the South Bay. The major efforts in the management of water resources involve:

- ***Santa Clara Basin Watershed Management Initiative;*** a regional inter-agency effort
- Implementation of San Jose's adopted ***Water Policy***;
- Operation, Maintenance & Capital Improvement of the ***San Jose / Santa Clara Water Pollution Control Plant, Municipal Water Systems & South Bay Water Recycling Project***t
- Implementation of the City's ***Clean Bay Strategy*** - a strategy to meet its NPDES Permit to discharge wastewater to the South Bay
- ***Urban Runoff Management Plan*** -improve water quality associated with urban runoff
- ***San José Action Plan*** - keeping dry weather effluent flows under 120 mgd.

The fundamental goals in each of these strategies entails endangered species habitat protection, which, in turn sets the goals of remediation of marshland, wastewater flow reduction, and toxic metals reduction (particularly Nickel and Copper flowing to the Bay from point and non-point sources of pollution).

| **List of Programs** | **Responsible Departments** |
|---|---|
| 1. San Jose/Santa Clara Water Pollution Control Plant (WPCP) | Environmental Services Department |
| 2. Clean Bay Strategy | Environmental Services Department |
| 3. Santa Clara Basin Watershed Management Initiative | Environmental Services Department |
| 4. San José Action Plan | Environmental Services Department |
| 5. Water Efficiency Programs | Environmental Services Department |
| 6. South Bay Water Recycling Program | Environmental Services Department |
| 7. Marsh Mitigation and wetlands restoration | Environmental Services Department |
| 8. Urban Runoff Management Program | Environmental Services Department |
| --Illicit Connections/Illegal Dumping Identification Program<br>--Industrial/Commercial Discharger Inspection & Educational Programs<br>--Residential Outreach and Education | Environmental Services Department |

| | |
|---|---|
| --Water Utilities Operations and Maintenance | |
| --Public Streets, Roads & Highway Operations & Maintenance<br>--Storm Drain System Operations and Maintenance | Department of Streets and Traffic |
| --New Development & Construction: Planning Procedures and Inspection Program | Environmental Services Department |
| 9. San Jose Municipal Water Service<br>--Conservation Pricing Water Service | Environmental Services Department |
| 10. Nickel Initiative | Environmental Services Department |
| 11. Cyanide Control Program | Environmental Services Department |
| 12. Copper Removal Program | Environmental Services Department |
| 13. Drought Response planning and Irrigation and Landscaping Guidelines | Department of Planning, Building, Code Enforcement |
| 14. Research and Monitoring | Environmental Services Department |

## 1. San Jose/Santa Clara Water Pollution Control Plant (WPCP)

The mission of the Plant is to economically produce the highest quality effluent that meets regulatory requirements for both beneficial reuse, and the protection of public health and environment.

Over the years from 1956 to present day, standards for wastewater treatment have become more stringent, and the Plant's tributary area and service population has grown steadily. As a result, capacity increases and new treatment processes have been added over time to meet the increased demands. Today the Plant is the largest advanced wastewater treatment facility in California with a design capacity of 167 mgd. It serves 1.3 million people in a 300 square mile service area that includes eight cities and portions of the unincorporated area of Santa Clara County.

### *Goals*

- Operation of the state-of-the-art computerized wastewater treatment plant 24-hours per day, 7-days per week to produce treated effluent and biosolids which comply with all regulatory requirements and which are acceptable for beneficial reuse.
- Maintenance of Plant equipment and facilities to ensure high treatment process reliability and performance.
- Offsetting energy expenditures by utilizing methane gas (a by-product of the Solids Handling process) to co-generate electric power and to optimize energy consumption by utilizing energy management techniques.
- Coordinating Plant activities with regulatory agencies, other City departments and with partner agencies through the Technical Advisory Committee, and Treatment Plant Advisory Committee.
- Optimizing treatment processes through research and development of new processes and equipment to reduce operating cost, increase treatment reliability, and improve

effluent and biosolids quality and to plan for facility improvements for increased reliability, efficiency and capacity.

***Benefits and Major Accomplishments***

The quality of the Plant's effluent is one of the highest in the world and approaches drinking water standards. In 1997 the Plant treated over 50 billion gallons (139 mgd) of wastewater, and removed over 94 million pounds of solids (258,600 lb./day) and 88 million pounds of BOD (257,000 lb./day). With a replacement value of well over $600 million, the state-of-the-art, computer controlled facility is one of the community's most valuable assets which won the EPA Region 9 Plant of the year award on five of the last 10 years.

***Lessons Learned***

The present decade has seen an increased emphasis on the control of metallic pollutants, particularly copper and nickel (as seen in the 1993 NPDES Permit) and increased regulations in the final disposition of residual solids. To meet these challenges, an aggressive Research and Development Program focusing on new operating methods along with expanded source control and pre - treatment programs are being employed with considerable success to address the metals issue. In addition, an aggressive biosolids management program has been implemented to address the proper use of residual solids.

## 2. Clean Bay Strategy

In 1989, the San Francisco Regional Water Quality Control Board (RWQCB) ordered the WPCP to reduce its discharge of copper and nickel by more than 50% to protect aquatic organisms in the receiving water, and meet state and federal water quality objectives. In addition, the RWQCB required the WPCP to reduce the quantity of effluent discharged to avoid converting the habitat of two endangered species (the salt marsh harvest mouse and the California clapper rail) from salt marsh to brackish or freshwater.

Over the years, the City has achieved significant reductions in pollutant discharges by enforcing stringent regulations limiting the amount of pollutants that industries could discharge into the sanitary sewer system. Nevertheless, new permit limits for copper and nickel were not consistently met. To meet these exceptionally low permit limits, the City had to advance beyond traditional "end of pipe" industrial and commercial controls.

As a result, the City has moved toward actively promoting an integrated watershed protection approach to water quality. This holistic approach, called the Clean Bay Strategy, considers all factors influencing water quality in the South Bay, including point and non-point sources of pollution, water supply issues, and improving in-Plant metals removal. Looking at the entire watershed in this manner is expected to lead to more cost-effective solutions and to avoid imposing unfair or unrealistic burdens on any one sector of the community.

Key programs of the Clean Bay Strategy include:

- Plant optimization whereby the Plant looks at ways that it could more effectively or efficiently remove pollutants such as copper and nickel that it was not originally designed to treat or remove and handle increased flow without major capital investment.
- Industrial reduction -- including company specific limits that lower copper and nickel and cyanide discharge to the maximum extent feasible through companies' identified process and changes in capital investment, including partnerships with the largest dischargers to reduce nickel.
- Residential and Commercial outreach and education including school programs; educational videos aimed at various audiences; and development and distribution of brochures on best management practices.
- Flow reductions to the Bay through water conservation and recycling programs
- Incentive programs to reduce flow and metals
- The Urban Run-off Management Program.

All of these programs are defined within this report.

***Goals***

The Clean Bay Strategy is based on five guiding principles:

- Holistic approach to environmental restoration
- Cost-effective environmental protection
- Regulatory certainty for the City and industrial dischargers
- Sound science and data collection
- Environmental Equity

## 3. Santa Clara Basin Watershed Management Initiative

***Goals***

The highly urbanized Santa Clara Basin is one of the first targeted watersheds of the statewide Watershed Management Initiative specified by the San Francisco Bay Regional Water Quality Control Board. The Santa Clara Basin includes all waterways that drain into San Francisco Bay south of the narrows at the Dumbarton Bridge, as well as the Santa Clara Valley Groundwater Basin. Most of the Santa Clara Basin is located in Santa Clara County. The water quality, water supply, flood control, water-related habitat, land use, and regulatory issues of the area are numerous and complex

This effort is being led by a Core Group of stakeholders, representing a wide range of interests, including but not limited to local government, the Santa Clara Valley Water District, business and industry, land development, environmental organizations, agriculture, and state and federal regulatory agencies.

Santa Clara Basin Watershed Management Initiative – Core Group

- San Jose/Santa Clara POTW
- Sunnyvale POTW
- Santa Clara Valley Water District
- Santa Clara Valley Manufacturers Group
- Department of Fish and Game
- San Francisco Estuary Institute
- CLEAN South Bay
- Santa Clara County - Environmental Resources Agency
- Santa Clara Cattleman's Association
- Palo Alto POTW
- Santa Clara County - Farm Bureau
- San Jose Chamber of Commerce
- Home Builders Association
- League of Women Voters
- Santa Clara Valley Audubon Society
- Regional Water Quality Control Board
- Santa Clara County NonPoint Source Program
- USDA Natural Resources Conservation District

The goal of the Watershed Management Initiative is to develop 1) a State of the Watershed Report that will provide an assessment of the area, and 2) a watershed management plan for the Santa Clara Basin. The watershed management plan will provide input into the development of regulatory requirements for the NPDES program and establish a mechanism for implementation to integrate watershed programs.

***Benefits***

The Santa Clara Basin Watershed Management Initiative (WMI) recognizes that the most effective environmental management of the South San Francisco Bay and its surrounding watershed comes out of partnership and cooperation among diverse interests. The WMI formalizes a new approach to watershed and bay protection that derives its strength from involvement of local government, business, resource agencies, agriculture, public interest groups, and the public-at-large in watershed planning from the earliest stages. This approach allows the community to develop its own vision of watershed use and protection, which can be continued and improved long after a focused planning effort is completed.

***Major Accomplishments***

At an early spring 1998 workshop, the following mission and goals were developed and are in the process of final adoption by members of the Core Group:

*Mission:* *Protect and enhance the watershed to create a sustainable future for the benefit of the community and the environment.*

*Goals*:

- Ensure that the Watershed Management Initiative is a broad, consensus-based process
- Ensure that necessary resources are provided for the implementation of the Watershed Management Plan.

- Simplify compliance with regulatory requirements without compromising environmental protection.
- Balance the objectives of water supply management, habitat protection, flood management and land use.
- Protect and/or restore streams, reservoirs, wetlands and the bay for the benefit of fish, wildlife and human uses.
- Develop an implementable Watershed Management Plan that incorporates science and is continuously improved.

***Lessons Learned***

The Watershed Management Initiative approach recognizes that the development of relationships based on common interests, as well as joint efforts among public, local, state and federal agencies, has proven to be an effective means of long-term resource protection.

## 4. San José Action Plan

In 1991 the City submitted the South Bay Action Plan to the San Francisco Bay Regional Water Quality Control Board (Regional Board) in response to concerns that increasing average dry weather effluent flows (ADWEF) from the San Jose/Santa Clara Water Pollution Control Plant (Plant) were adversely affecting the habitat of two endangered species – the California clapper rail and the salt marsh harvest mouse. The Action Plan proposed a series of measures designed to reduce ADWEF to below 120 million gallons per day (mgd) to address the threatened imposition of a 120 mgd ADWEF "cap" by the Regional and State Water Boards. Pursuant to the Action Plan the City has been implementing many flow reduction measures over the past 5 years, including the South Bay Water Recycling Program, which is designed to divert up to 21 mgd from discharge to the South Bay.

In 1996 the ADWEF for the Plant was 132 mgd. Under Regional Board Resolution 91-152, when the Plant's ADWEF exceeded 120 mgd, the Regional Board was required to hold a hearing. At that December 18, 1996 hearing, the Regional Board considered three options: amend the Plant's National Pollutant Discharge Elimination System (NPDES) permit to limit ADWEF to 120 mgd; direct the City to propose an alternative solution by June 1997; and no action. The Regional Board adopted the second option.

In response, the City submitted a draft Revised Action Plan to the Regional Board in May 1997. The City Council approved this plan on June 24, 1997. The Revised Action Plan calls for two projects to begin in Fiscal Year 1997-98: public education and on-site water reuse. A third near-term project of wastewater diversion to the Sunnyvale treatment plant is under investigation. The Revised Action Plan also calls for seven projects to be conducted between 1997 and 2002. These include water conservation, two expanded water recycling projects, industrial water recycling, inflow and infiltration reduction, and two environmental enhancement projects. Total costs of these projects are estimated at

$150 million. These projects are in addition to Phase I projects of the original Action Plan.

Regional Board hearings on the Revised Action Plan were held in August 1997. Concerns raised to the Board by environmental interest groups led to City meetings with interested parties to resolve issues surrounding the proposed elements of the Revised Action Plan. The result was the September 1997 Order No. 97-111 wherein the Regional Board amended the NPDES permit for the Plant and approved the Revised Action Plan. This order required the submittal of three reports to be acceptable to the Board's Executive Office:

1. A salt marsh conversion assessment;
2. A contingency plan to be implemented if measures in the Action Plan do not achieve expected flow reductions; and
3. Identification of factors beyond the discharger's control which would impact the implementation of the Revised Action Plan or the Contingency plan.

***Goals***

The key goal of the San José Action Plan is to reduce dry weather effluent flows from the WPCP to less than 120 mgd though a variety of mitigation measures.

***Benefits***

Compliance with permit requirements.
One part of reducing impairment of beneficial uses of the Bay.

## 5. Water Efficiency Programs

Water supply and water use are critical issues for the city. In 1986, City Council adopted two key principles regarding water efficiency. Those principles are:

- *The City of San Jose considers water efficiency to be an integral part of good water resource management and long-range water resource planning.*
- *Water efficiency programs should be designed to retain or improve the quality of life in San Jose and enhance economic stability.*

Those principles were reinforced in 1996 when the City Council adopted the Water Policy Framework, which also identified other key policies regarding water supply, use and conservation. The City's adopted water efficiency principles and policies lay the groundwork for the development and management of the City's water efficiency programs.

The City has been implementing water conservation programs on an on-going basis since the early 1980's. In 1986, a ten-year plan was adopted by City Council, the priority of which was to reduce flows to the Water Pollution Control Plant. Later this plan was recommended by the City to be included as part of the mitigation plan (the South Bay Action Plan) requested by the Regional Water Quality Control Board. In doing so, many

of the plan's elements became required as provisions of the Plant's discharge permit. At the core, the water conservation plan of 1986 represents a proactive program that will support City sustainability in future years. Ongoing programs also serve as an approach to the issues facing growth in the region.

Current elements include public education on water efficiency and the importance of reducing flows to the South Bay; residential programs which focus on the aggressive replacement of water-guzzling toilets to Ultra-Low Flush Toilets (ULFTs); and commercial/industrial/ institutional programs which promote ULFTs and the installation of water efficiency appliances and process equipment.

***Goals***

The fundamental goal of these programs is to provide information and services, which promote the efficient use of water, with a particular emphasis on efficiencies which reduce flows to the Plant. The current Water Efficiency Program goal is to implement programs and promotions that result in a flow reduction of 5-8 mgd over a five-year period, with an annual reduction of not less than 1 mgd.

***Benefits***

Water saved through these programs represents reduction in demand on water supply and distribution; the amount of wastewater requiring treatment; and the consumption of electricity, chemicals and other resources used in these operations. In doing so, these programs help to accommodate continued growth and achieve the vision of environmental stewardship and sustainability.

***Major Accomplishments***

By the close of fiscal year 96/97, the City's water efficiency programs had achieved the flow reduction goal of 15 mgd from the 1986 conservation plan and 1991 Action Plan. More than 5 mgd of this reduction was completed during the last three years of that period and occurred during a time of tremendous regional growth. Water use rates continue to remain below baseline levels in 1987.

Building on the success of those efforts, the City developed a five-year strategy for continued water efficiency, which heavily emphasizes permanent hardware changes and efficiency practices to support persistent water savings. The aggressive workplan encompasses the following elements:

- Continued aggressive public education campaign on water efficiency and the need for wastewater flow reduction to the South Bay.
- Continued emphasis on residential sector toilet retrofits through the ULFT Rebate, Voucher, and Community Partnership programs.
- Additional emphasis on commercial and institution toilet retrofits to ensure that businesses, schools, and public agency facilities have installed ULFTs.
- Expansion of water efficiency program elements into the cities of the Plant's tributary area.

- Research and development of other water-saving technologies for the purpose of future program efforts.

***Lessons Learned***

A comprehensive efficiency program addresses various sectors and uses a variety of techniques, including education, incentives, and requirements. The approach used for a given sector must consider the needs and various characteristics of that customer base. Particularly for business customers, there is nothing more powerful than face-to-face customer contact to relay a message or promote a service.

Expanding the scope of a program beyond the boundaries of established City influence presents its own challenge. To implement programs serving several cities requires coordination amongst a broad array of agencies, associations, vendors, and trades. The cooperation provided by these relationships is critical to the success of regional water efficiency programs.

## 6. South Bay Water Recycling

The South Bay Water Recycling Program (SBWRP) is an on-going, multi-year effort to utilize high quality recycled water from the San Jose/Santa Clara Water Pollution Control Plant (WPCP) to use for irrigation, industrial and other purposes. Phase I facilities include a diversion structure, transmission pump station, two remote booster pump stations with one reservoir and 60 miles (97 km) of distribution pipeline. Recycled water will initially be delivered to over 200 customers from Santa Clara and Milpitas all the way to the Evergreen Valley in south San Jose. The total design and construction budget for these facilities is approximately $140 million dollars.

The Program is being implemented through a Resource Partnership which includes the cities of San Jose, Santa Clara and Milpitas, plus five other wastewater tributary agencies, five water retailers, consultant support, U.S. Bureau of Reclamation and the Santa Clara Valley Water District (SCVWD). Nearly a dozen different city agencies, and consulting firms along with the SCVWD are providing critical Program services including, right-of-way acquisition, traffic control, pipeline design, inspection and actual construction. This Resource Partnership combines the best experience and commitment of both local agency and consultant staff to fulfill the Program's goals.

As defined in the Revised Action Plan adopted by the Regional Board in September 1997, Phase 2 of the program includes extension of the SBWR pipeline to irrigation and industrial customers to divert an additional 15 mgd of flow. The adopted plan requires construction of the Phase 2 facilities to begin in January 2001. Final cost of this work will depend upon the pipeline alignment selected, but various preliminary alternatives have been estimated at $80-100 million. In May 1998 the City obtained consultant services to develop a conceptual design for the Phase 2 facilities, and to prepare a master plan for ultimate distribution of 100 mgd. Several water recycling options will be

considered during the master planning activities, including industrial use, agricultural use, and potable use of recycled water.

***Goals***

The original goal of South Bay Water Recycling - Phase 1 - to recycle/divert 21 mgd of tertiary treated effluent that is now entering the South Bay. It is estimated that about 12 mgd will be diverted during the 1998 dry weather season, with 15 mgd in subsequent years. The goal for Phase 2 is an additional 15 mgd, for a total SBWR diversion of 30 mgd by 2002. Overall, the goal of the South Bay Water Recycling is to limit discharge to the South Bay below 120 mgd; to provide a reliable, drought-proof supply of water for appropriate use; and to allow maximum benefit from the use of this resource.

***Benefits***

Successful implementation and development of SBWR will reduce the City's demand on ground and surface water reserves and help meet State and Federal limitations on treated effluent being placed into the South Bay by the Water Pollution Control Plant.

***Major Accomplishments***

As of May 1998 project construction is nearly complete, and customers have been connected with a cumulative demand of 6 mgd. Additional customers will be connected by the end of the current dry weather season for a cumulative demand of 12 mgd. Consultant services have been engaged for preparation of a 2020 Master Plan and development of Phase 2 facilities.

## 7. Marsh Mitigation and Wetlands Restoration

The Plant discharges treated effluent into the extreme reaches of the South San Francisco Bay. The salt marsh plant community of the South Bay provides habitat for two endangered species, the California Clapper Rail and the Salt Marsh Harvest Mouse. In 1990, the State Water Resources Control Board (SWRCB) found the freshwater discharge from the Plant had led to the conversion of salt marsh to brackish and freshwater marsh between 1970 and 1985. As a result of this finding, the SWRCB required the City to submit a mitigation proposal for past degradation of endangered species habitat which must provide for the creation or restoration of 380 acres of salt marsh habitat. To achieve the 380 acre salt marsh mitigation provision and to establish a bank for possible future salt marsh conversion, the City proposed purchasing a 54 acre diked seasonal wetland from the Port of Oakland and to provide funding for 360 acres of abandoned slat ponds from Cargill, Inc. These two parcels, known as the Moseley Tract and Baumberg Tract respectively, are located in the south San Francisco Bay and have been identified by the U.S. Fish and Wildlife Service as important potential additions to the San Francisco Bay National Wildlife Refuge.

***Goals***

The key goals of Marsh Mitigation and Restoration include the following:

- Acquisition of bayside land for the purpose of maintaining and/or restoring of Wetlands and Marsh habitat.
- To protect beneficial uses of the San Francisco Bay.

***Benefits***

- Reduction of the impact of the freshwater flow from the WPCP on south bay salt water marsh habitat.
- Increased marsh habitat in the south bay. This habitat is a vital component in the San Francisco Bay's ecosystem.

***Major Accomplishments***

The City has fully complied with it obligations by providing $6,031,080 to the State for acquisition and restoration costs for the Baumberg Restoration Project. The City has acquired the Mosely Tract and plans to begin restoration in the fall of 1997.

## 8. Urban Runoff Management Plan

The City of San Jose's (City) Urban Runoff Management Program (formerly known as the Nonpoint Source Program) is charged with the mission to reduce pollutants in urban runoff to the maximum extent practicable. Urban runoff is estimated to account for 50-80% of the state's water quality [1]problems. The federal Clean Water Act was amended in 1987 to require the discharge of urban runoff from municipal separate storm sewer systems[2] to be regulated under the nationwide surface water permit called the National Pollutant Discharge Elimination System (NPDES).

The permit is issued to the Santa Clara Valley Urban Pollution Prevention Program (PROGRAM) which is made up of 15 co-permittees which includes the City of San Jose, Santa Clara County, the Santa Clara Valley Water District, and twelve other cities in Santa Clara Valley. To fulfill the requirements of the permit, an Urban Runoff Management Plan (URMP) is submitted by the PROGRAM to the Regional Water Quality Control Board (RWQCB) which details control measures each co-permittee will implement within its jurisdiction to prohibit non-stormwater runoff from entering the municipal separate storm sewer system.

The City's Environmental Services Department, Environmental Enforcement Division administers the City's URMP and coordinates with other affected City departments such as the Public Works Department, the Department of Planning, Building and Code Enforcement, and the Department of Streets and Traffic to develop and implement the

[1] Source: Lindsay Museum Report

[2] **Municipal separate storm sewer system** is defined by federal regulations to be ì...a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains...î

City's URMP and to document the work achieved. The City submitted and implemented its first 5-year plan (formerly known as the Storm Water Management Plan (SWMP) in 1990. In March 1997, it submitted a draft URMP to the Regional Water Quality Control Board to fulfill the requirements of the NPDES permit. The most recent submittal lays out the program elements the City has committed to implement, and a timeline for completion of milestone activities to fulfill the performance standards it has set forth for itself. Those programs currently under the Urban Runoff Management Plan are:

1. Illicit Connection/Illegal Dumping Elimination Program
2. Industrial/Commercial Inspection Program
3. Residential Outreach and Education
4. Public Streets, Roads and Highways Operations and Maintenance
5. Water Utilities Operations and Maintenance
6. Storm Drain System Operations and Maintenance
7. New Development & Construction: Planning Procedures & Inspection Program

The goal of the URMP for the PROGRAM (which San Jose has adopted) is the following:

> *"To assist in the protection of beneficial uses of receiving waters by preventing pollutants generated from activities in urban service areas from entering runoff to the maximum extent practicable"*

**URMP Program Elements:**

**Illicit Connection/Illegal Dumping Elimination Program**

The goal of this program element is to identify and eliminate illicit connections to stormdrains and illegal dumping of non-stormwater into the separate municipal storm sewer system. ESD's Environmental Enforcement Division's Urban Runoff Management Inspectors respond to complaints from citizens and other City departments. The City is developing a monitoring approach that reflects periods of seasonal activities with potential to discharge pollutants into the stormdrain. Target areas will be identified based on historical referral information, monitoring, and other data.

**Industrial/Commercial Inspection Program**

Over 1,500 businesses are inspected annually to ensure that non-stormwater discharges are eliminated from the municipal separate storm sewer system and that best management practices are implemented. These businesses include those required to file a Notice of Intent to the State under federal and state law as well as targeted industries such as restaurants and automobile repair and dismantlers that have a high potential to discharge pollutants into the separate municipal storm sewer system.

**Residential Outreach and Education**

Residential areas account for approximately 59% of all land use in San José, therefore, the focus of the City's Public Information and participation element is on its residents. The City continues to focus on coordinated consistent residential water messages as well as coordinating its outreach efforts with other local and regional groups. These programs will focus its efforts on source specific areas such as illegal disposal of automobile fluids, auto dismantling, and residential pesticide use and disposal.

**Public Streets, Roads and Highways Operations and Maintenance**

There are 2,250 miles of public roads that are maintained by the City. This program includes provisions to routinely remove pollutants from City streets as well as control pollutants from regular operation and maintenance activities done on roads, sidewalks, medians, and other related structures within the City. Street sweeping is a key best management practice used by the City to reduce the volume of metals on public roads.

**Water Utilities Operations and Maintenance**

San Jose's Municipal Water System (Muni Water) serves the areas of Evergreen, Edenvale, Coyote Valley and North San Jose. Muni Water supplies 20,000 customers, including approximately 70,000 individuals in residential, commercial, and industrial accounts. Muni Water operation and maintenance activities involve treatment, conveyance and storage of water. Muni Water facilities include pumps to reservoirs, water lines, electrical controls, and treatment equipment. Since these activities have the potential to impact ambient water quality, this program element requires that the staff of Muni Water will conduct the following activities:

1) Identify discharges of concern;
2) Identify and evaluate control measures to reduce these discharges;
3) Develop and implement a Water Utility Pollution Prevention Plan; and
4) Develop and implement a training program for City staff on contractors

**Storm Drain System Operation and Maintenance**

The City has over 850 miles of storm drain lines and over 26,000 catch basins and the City's program for operations and maintenance reaches all 157 square miles of the City. The City has committed to inspect and clean all inlets/catchbasins every year as needed and all problem areas every year.

**New Development and Construction: Planning Procedures and Inspection Program**

New Development and Construction activities have the potential to discharge sediment and pollutants of concern from the construction sites. ESD funded a full-time planner in the Department of Planning, Building and Code Enforcement to ensure that amendments were made to existing planning procedures and environmental review documents to ensure that site design and engineering conform with existing BMPs per the General Construction Activity Storm Water Discharge Permit. ESD is working with the Public Works Department, Development Services to improve the City's existing grading ordinance and inspection program to ensure that Erosion Control Plans are in place where needed and are implemented properly.

## 9. San Jose Municipal Water System

The San Jose Municipal Water System supplies high quality drinking water to residents and businesses in Evergreen Edenvale, Coyote, Alviso and North San Jose. Imported water is supplied from the State Water Project and the Central Valley Project via the Santa Clara Valley Water District as well as from the San Francisco Water Department's Hetch Hetchy system. In addition, the Municipal Water System operates a number of wells to provide groundwater to undeveloped service areas and to augment surface water supplies. The System will also be responsible for maintenance of the South Bay Water Recycling Program pipeline within the City of San Jose when that system becomes operational.

The Municipal Water System also provides a number of conservation services, including: marketing and administration of the Ultra Low Flush Toilet Rebate Program, free

distribution of low-flow showerheads and faucet aerators, residential water audits, and customer targeting and marketing for the Santa Clara Valley Water District's large-turf audit program and Commercial, Industrial, and Institutional audit program. The Municipal Water System also supports the Environmental Services Department's residential outreach and education goals through billing messages, bill inserts, and point-of-contact distribution of conservation brochures and materials through residential ULFT inspections and a lobby display case at the main office.

***Goals***

- Maintain and expand a safe and efficient water distribution system to meet current and future customers' needs for high-quality potable and recycled water.
- Be the most conservation-oriented water purveyor within the city.

**Conservation Pricing Water Service**

The City has adopted a four-tiered inverted rate structure for water service to residential customers within the San José Municipal Water System. The tiered rate is based on total usage over the bi-monthly billing period. As more water is used, the marginal price of water increases in increments of approximately 20 cents/hundred cubic feet.

The key goal of Conservation Pricing Water Service is to promote water conservation though economic incentives. This will reduce the City's demand on ground and surface water reserves, and help meet State and Federal limitations on treated effluent being placed into the south bay by the WPCP.

***Benefits***

By continuing to communicate the importance of conservation, customers have maintained many of the behaviors that resulted in water use reductions during the drought.

***Major Accomplishments***

The San Jose Municipal Water System has provided water service to the fastest growing areas of San Jose. Over 5,000 ULFTs have been retrofitted in the Municipal Water service area since 1992. Six large turf area irrigation customers and one institutional customer have received professional water audits, resulting in the identification of significant water efficiency improvements.

## 10. Nickel Initiative

In 1995 the City of San José entered into a partnership with four major industrial corporations within the Silicon Valley. These four companies discharged about 35% of the industrial nickel that went into the WPCP. This public/private partnership investigated beneficial, equitable and economically sound methods and procedures to reduce the nickel discharged to the sanitary system.

***Goals***

The key goals of the Nickel Initiative include the following:

- To create a public/private partnership to reduce nickel discharges to the sanitary sewer.
- Comply with local limit requirements.
- Test the hypothesis that "cooperation works better than command" in certain regulatory situations.

***Benefits***

The Nickel Initiative produced a better relationship with the industries and reduced nickel discharges.

***Major Accomplishments***

The Nickel Initiative was a highly successful program and confirmed the advantages of private/public partnerships that work cooperatively to solve environmental problems. Also this public/private partnership has significantly reduced nickel loading to the Water Pollution Control Plant. Final estimates indicate a drop of about 50% in the level of nickel released from the participating corporations.

***Lessons Learned***

One of the key successes of the Nickel Initiative is the increased communication and information sharing between the City and industry. Building on this, the City and the Partners within the Nickel Initiative, have established joint training and technical transfer opportunities to share the information and process control mechanisms learned from this program. The possibility exists that the partnership concept may lead to better environmental protection than the more traditional method of telling an industry to do a specific action.

## 11. Cyanide Control Program

The City adopted a multi-faceted program to reduce discharges of cyanide from the Plant in order to meet NPDES requirements.

***Goals***

The key goals of the Cyanide Control Program include the following:

- To determine the sources of cyanide pollution.
- To increase awareness of the problem of cyanide pollution with those most likely to be responsible.
- Reduce the amount of cyanide reaching the Bay.
- To protect beneficial uses of the San Francisco Bay.

***Benefits***

This program has accomplished a reduction of cyanide to the Bay.

***Major Accomplishments***

The studies done on cyanide flowing though the WPCP show that cyanide is not currently a constituent of concern in the WPCP final effluent. Concentrations of cyanide have continuously decreased over the past 7 years. Current concentrations have been less than the reporting limit of 5.0 µg/l for nearly 24 months. The current level of cyanide present

in the final effluent of the SJ/SC WPCP dose not appear to contribute to degradation of beneficial uses of the San Francisco Bay.

## 12. Copper Removal Program

One of the reasons the San Francisco Bay is designated an impaired waterbody is due to elevated levels of copper found in the Bay. The City has difficulty meeting NPDES permit requirements for copper in its treated wastewater effluent.

***Goals***

The key goal of the Copper Removal Program is to reduce the amount of copper reaching the Bay from wastewater discharge

***Benefits***

- Compliance with permit requirements.
- Research into optimization of the Plant's treatment process to maximize copper removal.

***Major Accomplishments***

A new optimization process at the Plant called Biological Nutrient Removal (BNR) shows promise as a method to maintain copper levels at a very low concentration and may result in significant energy savings.

***Lessons Learned***

Copper concentrations in the Bay are unlikely to be controlled by only emphasizing controls on point sources. There is a need to emphasize the control of copper from urban runoff and other sources if we are to resolve these issues through source control efforts.

## 13. Drought Response planning and Irrigation and Landscaping Guidelines

Information on this program is fully provided under the LAND USE AND GROWTH MANAGEMENT portion of this document.

## 14. Research and Monitoring

The Research and Development program has been ongoing for three years. Although the Plant was designed to remove conventional wastewater pollutants, such solids, BOD, ammonia, and pathogenic organisms, the plant does reduce the level of some non-conventional pollutants such as metals and organics. With this in mind, a yearlong sampling program was conducted to identify the fate of copper and nickel through the individual treatment steps in efforts to evaluate the potential for enhanced removal. At

the close of the study it was postulated that by modifying the operational mode of a couple of existing processes, significant reductions in copper discharges might be achieved. It was also concluded that nickel discharges could not be reduced through process optimization and had to be addressed by source control efforts.

For the past two years, research has been ongoing to test the benefits of specific changes to existing processes to enhance copper removal and reduce overall operating costs. To date the pilot program has been very encouraging showing up to 30 % reduction in copper concentrations as well as potentially reducing operating costs up to $500,000/year and eliminating the need for millions of dollars in future Plant capacity increases. If successful, the copper reduction program will also significantly reduce the need for tighter copper standards for industries that would have cost industry millions of dollars in additional pretreatment facilities.

Monitoring and data collection is currently taking place at numerous locations around the City of San José. Various City Departments such as the Laboratory at the Water Pollution Control Plant are collecting data. Data is also collected by independent organizations such as the Coyote Creek Riparian Station.

***Goals***

The key goals of Research and Monitoring include the following:

- To better locate and quantify sources of pollution throughout the area.
- To identify problem pollutants in the system.
- Provide data for future projects.
- To protect beneficial uses of the San Francisco Bay.

***Benefits***

- Monitoring and data collection allows identification and tracking of effectiveness of projects and programs.
- Monitoring and data collection allows identification of problems so future projects can be more effective.
- Build trust because all participants are able to use accepted data.

## INTEGRATED WASTE MANAGEMENT

The City's Integrated Waste Management Division administers solid waste removal from over 270,000 residential households and 25,000 businesses and institutions in the City of San José. In 1996 the citizens and business of San José produced over 1.2 million tons of solid waste. The City's goal is to divert as much municipal solid waste from landfills as is technically and economically feasible.

To comply with the requirements of the California Integrated Waste Management Act and the City's own waste reduction strategy, a waste diversion goal of 50 percent for the calendar year 2000 has been established. The City's waste reduction strategy encompasses making recycling services accessible to all City residents and businesses, the use of incentives where appropriate to encourage waste generators and collectors to minimize waste and foster waste reduction, recycling and composting practices, utilizing local landfill space in such a way as to preserve current and future capacity, and instituting waste reduction, recycling, and buy-recycled practices at all City facilities and public areas within its jurisdiction.

| List of Programs | Responsible Department |
|---|---|
| 1 Recycle Plus | Environmental Services Department |
| 2 Yard Trimmings Collection and Home Composting Programs | Environmental Services Department |
| 3 Commercial Recycling Program | Environmental Services Department |
| 4 Recycle @ Work Program | Environmental Services Department |
| 5 Recycled Product Procurement in City Purchasing | General Services Agency |
| 6 Household Hazardous Waste Collection Program | Santa Clara County |
| 7 Waste Prevention Program | Environmental Services Department |

The City has some of the most extensive and successful recycling and waste reduction programs in the country. The resounding success of these programs are a result of a multi-sector, multi-faceted approach to recovering usable resources and keeping them out of our limited landfill space.

### 1. Recycle Plus

This program is responsible for management of residential recycling and garbage collection contracts. These contracts are bid on by private haulers who are then authorized to collect the recycled material. Since the program began in July 1993, more than 80,000 tons of recyclables per year have been recycled. The increase in recyclables collected has lead to a residential solid waste diversion rate of approximately 46%, which is up from the 12% diversion rate established in 1990. This is well on the way to meeting the AB 939 Goal of 50% diversion from landfills in the year 2000.

***Goals***

The key goals of Recycle Plus include the following:

- Reduction in the amount of solid waste reaching the City's landfills by 25% by 1995 and 50% by 2000 in accordance with AB 939 compared to a baseline of 1990.
- Education of the public of the benefits of Recycling.

***Benefits***

- Conservation of raw materials (wood, ore, etc.)
- Conservation of land where raw materials are located
- Conservation of land where landfills would be located if recycling was not done
- Saves energy in some manufacturing processes (.i.e. aluminum)
- Saves water in some manufacturing processes (.i.e. paper)
- Reduction of air and water pollutants compared to raw material processing
- Over long run may be cheaper than shipping of solid waste to distant landfills
- Landfills are politically difficult to site. The Not In My Back Yard (NIMBY) response
- Landfills can potentially contaminate ground water, put methane into the air, and lower land values
- Recycling creates more local jobs than landfilling.

***Major Accomplishments***

The Recycle Plus program met all of the California AB 939 requirements in 1995 and is currently well on its way to meeting the 2000 goal of 50%. In 1996 recycling was at 44% for the City as a whole.

## 2. Yard Trimmings Collection and Home Composting Programs

There are currently two commercial venders for yard trimming collection. Pick up in the north portion of the city is done by BFI and in the south by GreenWaste Recovery. The Yard Trimming Collection Program collects approximately 110,000 tons of yard trimmings per year, all of that is diverted from the solid waste landfill. These trimmings are either processed into mulch or compost and used locally on City parks and properties or by farmers. About 1500 composting bins have been sold to City residents lessening the amount of solid waste entering the waste stream at conception.

***Goals***

The key goals of the Yard Trimmings Collection and Home Composting Programs include the following:

- A 25% reduction in the amount of solid waste reaching the City's landfills by 1995 and 50% by 2000 in accordance with AB 939 compared to a base line of 1990.
- Education of the public of the beneficial uses of composting

***Benefits***

- Conservation of land where landfills would be located if recycling not done.
- Over long run may be cheaper than shipping of solid waste to distant landfills.
- Landfills are politically difficult to site. The Not In My Back Yard (NIMBY) response.
- Landfills can potentially contaminate ground water, put methane into the air, and lower land values.

***Major Accomplishments***

Diversion of approximately 110,000 tons of yard trimmings per year from the solid waste landfills.

## 3. Commercial Recycling Program

Commercial recycling is provided to businesses by multiple private haulers in an open competitive, non-exclusive system. The City currently has 11 mixed recyclable franchisees. The City uses financial incentives and public education to encourage businesses to reduce waste and obtain recycling services from private recyclers. The City provides a variety of programs to assist commercial and industrial waste generators in recycling and waste reduction. The commercial staff provides technical assistance to businesses including waste audits, a directory of recycling franchisees and the materials they collect, information on types of recycling in various industries, and educational and promotional materials for businesses to use in developing a recycling program.

***Goals***

The key goals of the Commercial Recycling Program include the following:

- A 50% reduction in the amount of solid waste reaching the City's landfills by 2000 in accordance with AB 939 compared to a base line of 1990.
- Education of the commercial and industrial sector of the benefits of recycling.

***Benefits***

- Conservation of raw materials. (wood, ore, etc.)
- Conservation of land where raw materials are located.
- Conservation of land where landfills would be located if recycling not done.
- Saves energy in some manufacturing processes (. i.e. aluminum).
- Saves water in some manufacturing processes (. i.e. paper).
- Reduction of air and water pollutants compared to raw material processing.
- Over long run may be cheaper than shipping of solid waste to distant landfills.
- Extends operating life of existing landfills, avoiding difficult politics associated with new landfill development (the Not In My Back Yard "NIMBY" response.)
- Reduces potential for landfill liability problems, such as ground water contamination, release of methane into the air, and lower land values.
- Recycling creates more local jobs than landfilling.

***Major Accomplishments***

In 1995 the Commercial sector diverted 44% (349,838 tons) of its solid waste to recycling. This is up from 1990 when just 11% (85,895 tons) of Commercial solid waste was recycled.

***Lessons Learned***

- Businesses have shown a preference for the competitive, non-exclusive collection of recyclables.
- Competition has been strong between the non-exclusive haulers, promoting cost savings for collection.
- Businesses in multi-tenant buildings are less likely to have recycling services. Small business that generate only small amounts of recyclable materials have difficulty getting recycling service. An emphasis on promotion of recycling and technical assistance to both these types of businesses is currently being made.

## 4. Recycle @ Work Program

The Recycle @ Work program is the recycling program for City employees. This program began in the 1980s by the General Services Administration whose staff performed the collection and the management of the program. A new Recycle @ Work program was implemented in mid-1996 that affected approximately 4,000 employees in all of the City owned buildings (over 50 sites) with the following changes: 1) a private contractor was hired to collect the recyclables and 2) employees were required to use a mini garbage can (a 1-gallon container compared to a standard 5-gallon can) as well as empty their own mini garbage can into centralized 23-gallon containers for the custodians to service as a means to discourage employees from throwing their recyclables into the garbage can. One City staff person continues to service City offices in leased buildings.

***Goals***

The key goals of the Recycle @ Work program include the following:

- Reduction in the amount of solid waste reaching the City's landfills by 25% by 1995 and 50% by 2000 in accordance with AB 939 compared to a baseline of 1990.
- Education of the City employees on recycling and source reduction.
- Be a model recycling program for San Jose's commercial businesses.

***Benefits***

- Conservation of raw materials (wood, ore, etc.).
- Conservation of land where raw materials are located.
- Conservation of land where landfills would be located if recycling was not done.
- Saves energy in some manufacturing processes (.i.e. aluminum).
- Saves water in some manufacturing processes (.i.e. paper).
- Reduction of air and water pollutants compared to raw material processing.
- Over long run may be cheaper than shipping of solid waste to distant landfills.
- Landfills are politically difficult to site. The Not In My Back Yard (NIMBY) response.

- Landfills can potentially contaminate ground water, put methane into the air, and lower land values.
- Recycling creates more local jobs than landfilling.
- Sets a good example for the community, in particular, the business community.

***Major Accomplishments***

The new Recycle-At-Work program has resulted in a reduction of garbage service needs by half at City Hall and the Police Administration Building, thereby reducing the amount of garbage sent to the landfill by 60 cubic yards per week.

## 5. Recycled Product Procurement in City Purchasing

This policy requires that the City, whenever possible, purchase products that contain, in order of preference, the highest percentage of post-consumer recovered materials and the highest percentage of pre-consumer recovered materials available in the marketplace.

***Goals***

The key goals of the Recycled Product Procurement in City Purchasing include the following:

- To purchase recycled materials for use with in the City.
- A 25% reduction in the amount of solid waste reaching the City's landfills by 1995 and 50% by 2000 in accordance with AB 939 compared to a base line of 1990.
- To set an example to the community at large.

***Benefits***

- Increased demand for recycled products.
- Know market provided for recycled products.
- Conservation of raw materials (wood, ore, etc.).
- Conservation of land where raw materials are located.
- Conservation of land where landfills would be located if recycling not done.
- Saves energy in some manufacturing processes (.i.e. aluminum).
- Saves water in some manufacturing processes (.i.e. paper).
- Reduction of air and water pollutants compared to raw material processing.
- Over long run may be cheaper than shipping of solid waste to distant landfills.
- Landfills are politically difficult to site. The Not In My Back Yard (NIMBY) response.
- Landfills can potentially contaminate ground water, put methane into the air, and lower land values.
- Recycling creates more local jobs than landfilling.
- Sets a good example for the community.

***Major Accomplishments***

The City's policy to purchase recycled products saves the city $10,000 a year just from recycling of laser-printer toner cartridges. Each ton of recycled paper saves 4,200 kWh of electricity, 17 trees, and 7,000 gallons of water. On a yearly basis, by purchasing recycled paper the city avoids the emission of 6,300 lbs. of $CO_2$, 10,500 lbs. $No_X$, and 24,360 lbs. $SO_2$.

## 6. Household Hazardous Waste Collection Program

This program helps reduce the amount of hazardous waste that is entering the solid waste stream and would otherwise be landfilled inappropriately. Even small amounts of household hazardous waste entering the landfills can pose health and environmental problems. This program is managed by Santa Clara County but is partially funded by the City of San Jose.

### *Goals*

The goal of the Household Hazardous Waste Collection Program is to prevent the introduction of hazardous waste into the landfills.

### *Benefits*

This program reduces the amount of hazardous waste entering the landfills.

### *Major Accomplishments*

In the first 5 years, 1992 through 1996, of this program the County Household Hazardous Waste Program served 31,054 households, 464 Conditionally Exempt Small Quantity Generators (CESQGs) and collected 1.7 million pounds of waste.

### *Lessons Learned*

The program is currently underfunded so not all hazardous materials that are able to be collected are collected.

## 7. Waste Prevention Program

The City has started to provide information on eliminating unnecessary sources of garbage (e.g. excessive product packaging) to the community though brochures.

### *Goals*

The key goals of the Waste Prevention Program include the following:

- To reduce and/or eliminate unnecessary sources of garbage.
- A 25% reduction in the amount of solid waste reaching the City's landfills by 1995 and 50% by 2000 in accordance with AB 939 compared to a base line of 1990.
- Education of the public of the benefits of Reduction.

### *Benefits*

- Conservation of raw materials (wood, ore, etc.).
- Conservation of land where raw materials are located.
- Conservation of land where landfills would be located.
- Reduction of air and water pollutants.

- Over the long run may be cheaper than shipping of solid waste to distant landfills
- Landfills are politically difficult to site.
- Landfills can potentially contaminate ground water, put methane into the air, and lower land values.

## ENERGY & AIR/CLIMATE PROGRAMS

The City of San Jose has been recognized regionally, nationally and internationally for its broad array of innovative programs that address issues of energy resource management, local air quality, global climate change and transportation congestion management. The City of San José is working with several regional, national and international organizations to promote Energy awareness and reduce air pollution. Those organizations include The International Council for Local Environmental Initiatives, UC Energy Task Force, Public Technology Inc, and the Urban Consortium to name a few.

The nine county Bay Area which includes San José is the largest metropolitan area in the nation to meet federal clean air standards. While many of these programs entail setting a good example in municipal facilities and operations, a great deal of others have been focused on assisting residents and businesses in San Jose to save on energy costs. Energy conservation results in more money being kept within the community. Every dollar spent on energy conservation generates $0.84 more local economic activity than petroleum or natural gas purchases, and $0.57 more than a dollar spent on electricity.

| List of Programs | Responsible Department |
|---|---|
| 1. Energy efficiency design improvements for City Facilities | General Services Department |
| 2. Municipal Choices in the Electric Industry Restructuring Market | Environmental Services Department<br>General Services Department<br>Streets and Traffic |
| 3. Power Saving Partners contract with PG&E for lighting energy conservation projects | General Services Department |
| 4. High Efficiency Street Lighting | Department of Streets and Traffic |
| 5. Participation in Federal Programs | Environmental Services Department |
| 6. Energy Conservation within Rehabilitation Program | Housing Department |

### 1. Energy Efficiency Design Improvements for City Facilities.

The In-House Energy Management project was initiated in 1981. It involved recommendation and installation of a wide array of energy conservation measures in City facilities, air conditioning, lighting, and installation of energy management systems, in new construction and in retrofits. Additional energy efficiency improvements have included: office lighting retrofits, variable speed air handling system, digester gas recovery/co-generation operations, computer-operated controls of building lighting and air handling, and upgrades of heating and cooling systems. Additionally, City staff works with PG&E in assigning utility accounts to the most favorable and least expensive rate tariff.

In 1990, a 1.5 megawatt cogeneration system went on line in the Convention Center. The purpose is to supply lower priced electricity and thermal energy to the Convention Center, thermal energy sales to the Hilton Hotel, back-up power during utility failures

and as-available excess electricity sales to PG&E. The cogeneration system is currently helping defray costs of operating the San José Convention Center.

Energy efficient design guidelines, entitled Innovative Design Energy Analysis Services were developed for use in the design of new construction of facilities in 1991. The design guidelines were successfully applied in the design of the Arena. As a result, the cooling system with a higher efficiency rating than required by code was installed, and is currently reducing annual operating costs. The Valley Transportation Agency recently adopted a set of guidelines for their use based on the San Jose IDEAS program. Currently, City departments responsible for capital construction are reviewing the IDEAS guidelines and other alternative methods for use in their projects. The decision for including upgrades in design will be based on life-cycle operational cost savings.

The City is also exploring several funding options to provide for the almost $1.5 million dollars worth of additional energy retrofit within city facilities. Included in these options is an opportunity to conduct performance contracting.

***Goals***

The key goals of the Energy Efficiency design improvements for city facilities and the include the following:

- To help the City reduce costs in operation and make more efficient use of energy within the City's operation.
- To further the adoption of cost-effective City of San Jose energy efficient guidelines for new publicly funded construction and major retrofits.
- To set a good example by discouraging wasteful use of resources and demonstrating new technologies when feasible and cost-effective.

***Benefits and Major Accomplishments***

A municipal cost avoidance of approximately $3 plus million per year in utility expenditures occurs as a result of the projects completed since the initiation of the energy efficiency projects. Streetlights account for about $1.5 million per year and have had a payback of about four years from energy efficient conversions. The two co-generation units account for approximately $1 million in savings annually and have had paybacks of about four to five years. Additional cost savings have resulted from buying natural gas at wholesale rates and monitoring bills for cost-savings. The City has achieved 70% of energy saving opportunities, with 90% of the lighting efficiency projects completed in existing facilities. These projects have had paybacks between two to eight years. Annual bill savings of approximately $315,000 by General Services have been accomplished in existing facilities by conserving 3.5 million kWh and 300,000 therms of natural gas per year.

## 2. Municipal Choices in the Electric Industry Restructuring Marketplace

Major changes are taking place in how the utilities operate. A major 1997 project, entitled "Municipal Choices in a Restructured Utility Marketplace," looked into two major areas; municipal utility cost savings, and the effect of electricity restructuring on local government revenues. To respond to this challenge and opportunity, the City was awarded grant funding by the U. S. Department of Energy through the Urban Consortium Energy Task Force. The purpose of the grant was to conduct research and develop recommendations related to electric utility restructuring - specifically the impact of the restructuring on municipalities. In accordance with the new provisions as legislated under AB1890 and the California Public Utility Commission (CPUC), the City solicited competitive bids from electricity suppliers to service aggregated municipal accounts.

City Council approved a contract with New Energy Ventures that allowed for a direct access agreement. Thirteen city accounts are included. The contract guarantees at least 5% savings off the cost of generation for these accounts. In addition, new account meters are being installed to allow account mangers to become more knowledgeable about future electricity purchasing decisions

The City is also considering a strategy to mitigate revenue impacts from the potential erosion of franchise fees. The Finance Department is taking the lead and will inform all new ESP (Energy Service Providers) of requirements of doing business in San Jose

The City is an active leader in forming California Communities Energy Alliance with representatives of staff from other cities and Local Government Commission. The aim of the initiative is to influence the decision under electricity restructuring to benefit local governments and communities. The City is aiming to be recognized as a stakeholder in the way energy efficiency and renewable funding is utilized.

Current program development decisions at the CPUC will determine dedicating a fair share of public benefit program funds for energy efficiency and renewables to communities and ratepayers. The City of San Jose, in cooperation with other cities, will have the opportunity to submit a bid for the implementation of future energy efficiency and renewable programs. Decisions on who is awarded these contracts will be based on cost of service, ability to target residents and businesses and ability to form alliance with other providers.

San Jose was selected by the Local Government Commission to receive planning and design services funded with ratepayer's monies from PG&E to help developers, builders and architects increase energy efficiency and sustainability of new construction projects.

***Goals***

The key goals of the Electric Industry Restructuring Project include the following:

- To create municipal cost savings.
- To protect municipal franchise fee and utility tax revenues.
- To support the capacity for energy conservation and renewable energy resources.
- To develop recommendations for City Council in each of the above areas.

***Benefits***

Understanding of the effects of the utility restructuring will allow the City to take advantage of new opportunities and effectively meet the challenges represented by this restructuring.

## 3. Power Saving Partners Contract with Pacific Gas & Electric

In an open auction format, PG&E invited bid packages of energy efficiency measures from public and private institutions for their pilot Demand Side Bidding Program. The winning bidders negotiated long-term contracts with PG&E whereby their energy efficiency projects would be implemented within three years, and sizable conservation payments would be made by PG&E over nine Years. The contracts are known as "Power-Saving Partners" contracts. In 1992, with the assistance of an Urban Consortium Energy Task Force Grant, the City was one of 13 successful bids. The City has installed new, energy efficient, lighting in specific city buildings as part of the PG&E Pilot Program. The major facilities that have participated include the Airport, community centers and other buildings that have a large lighting load. The project is now complete and the payments from PG&E are used to support extension of the work underway in the City's in-house energy management program.

***Goals***

The key goals of the Power Saving Partners contract with PG&E are to achieve cost and energy saving though instillation of energy efficient lighting in specific City buildings.

***Benefits***

- Reduction in energy use by the City.
- Savings to the City.
- Incentive payments.

***Major Accomplishments***

The project is estimated to save the city $96,000 annually in energy cost. Above and beyond the energy savings PG&E is providing nine years of incentive payments at about $50,000 per payment/year to the City.

## 4. High Efficiency Street Lighting

This project entailed the conversion of almost all of the City's 48,000 streetlights from incandescent and mercury vapor streetlights to high-pressure sodium lamps. The project was initiated to reduce light pollution within the City. The light pollution was negatively impacting the Lick Observatory. High efficiency streetlights have a significantly reduced energy demand when compared to traditional mercury vapor an incandescent lighting.

***Goals***

The key goals of High Efficiency Street Lighting include the following:

- To reduce light pollution from streetlights
- To reduce energy use.

***Benefits***

- Energy savings and associated monetary savings from light replacement.
- Reduced light pollution.

***Major Accomplishments***

The initial 1984 conversion of 48,000 streetlights saves the city 1.5 million annually in energy costs. The City is currently converting to more energy efficient low-pressure sodium lamps; this is projected to save the city an additional 2 to 3 million annually in energy costs.

## 5. Participation in Federal Programs

Environmental Protection Agency - Green Lights

The San Jose Green Lights program was initiated in September of 1994 with the signing of a Memorandum Of Understanding (MOU) between the City and the US Environmental Protection Agency (EPA). The City agrees to survey its public buildings for energy efficient lighting projects, and where feasible, inefficient lighting components are eventually replaced by efficient lighting equipment. In return, the EPA offers technical assistance and formal recognition of program participation to the City. The City also becomes a partner in marketing the Green Lights Program to its constituents, e.g., local businesses. The (EPA) has designated the City as a Green Lights Partner, with PG&E as its ally in the program. PG&E offers rebates for implementing energy efficiency in lighting. Through the Green Lights Program, City employees are also encouraged to adopt energy-conscious behaviors such as shutting off computers, copiers, and other equipment at the end of the day. Behavioral measures cost nothing, yet can provide considerable energy cost saving of over $60,000 per year.

Department of Energy - Clean Cities

Clean Cities is a locally-based government/industry partnership, coordinated by the U.S. Department of Energy (DOE) to expand the use of alternatives to gasoline and diesel fuel. This has been done by working with local decision-makers within the South Bay to create and carry out effective plans at the local level for establishing a sustainable, nationwide alternative fuels market. The program assists South Bay local government organizations with acquiring Alternative Fuel Vehicles.

The City of San Jose has an active alternative fuels vehicle replacement program involving compressed natural gas and electric vehicles. The City is demonstrating the effectiveness of several different types of alternatively fueled vehicles. The vehicles will have less of an impact on our environment and air quality than do standard gas and diesel vehicles. Currently the City has 97 alternative fuel vehicles and expects delivery of 15 more vehicles by the end of 1997. The city's vehicle fleet includes vehicles powered by compressed natural gas, electricity and propane.

Funding for the program is from AB434 grants through the Bay Area Air Quality Management District and the Valley Transportation Agency. The South Bay Clean Cities Coalition is a locally based government/industry partnership assisted by the U.S. Department of Energy (DOE) to help local governments shift from the use of alternatives to gasoline and diesel fuel. This has been done by working with local decision-makers within the South Bay to create and carry out effective plans at the local level for establishing a sustainable, nationwide alternative fuels market. The program assists South Bay local government organizations with acquiring Alternative Fuel Vehicles.

### *Goals*

The key goals of the *Greenlights* (EPA) and *Clean Cities* (DOE) Programs include the following:

- Reduce air emissions from vehicles within the City.
- Promote the use of alternative fuel vehicles.

- Information exchange between alternative fueled vehicle users.
- To maintain compliance with Clean Air standards.

***Benefits***

- Reduction in cost to the City as a result of reduced energy use.
- Acquisition of alternative fuel vehicles.
- National recognition of the work done by the City.

## 6. Energy Conservation within the Housing Rehabilitation Program

This program is designed to provide loans for the rehabilitation of properties as part of those loans weatherization and energy conservation requirements are placed. Minimum insulation standards are set and installed within eligible homes.

### *Goals*

The goal of the program is to provide affordable, acceptable low and moderate income housing within San Jose by reducing the energy costs.

### *Benefits*

- Decreased energy use
- Increase in house value and livability

## TRANSPORTATION

Traffic was recently rated one of the top concerns of San José residents. Peak hour drive-alone rates in 1996 for San José are estimated at 74.3%. The average one-way commute distance for San José residents is 11.9 miles with an average one-way commute time of 24.0 minutes. Out of the 122 critical intersections identified with in San José, thirty had Level of Service (LOS) rating of D or worse. The City of San José General Plan currently defines LOS-D as the minimum acceptable level of service. The City has introduced several internal programs in an attempt to reduce drive-alone rates, which will reduce Vehicle Miles Traveled (VMT), which reduces demand on existing roadway and air pollution.

| List of Programs | Responsible Department |
|---|---|
| 1. Alternative Fuel Vehicle Fleet Management Program | Department of General Services |
| 2. Traffic Signal Management Programs | Department of Streets and Traffic |
| 3. Ecopass & Subsidized Transit Passes | Department of Public Works |
| 4. CNG Vanpool Program | Department of Public Works |
| 5. Preferred Parking Locations for Carpools and Vanpools | City Wide |
| 6. Guaranteed Ride Home Program | Department of Public Works |
| 7. Silicon Valley Smart Corridor | Department of Streets and Traffic |
| 8. LED (Light Emitting Diode) Traffic Signal Light Program | Department of Streets and Traffic |

### 1. Alternative Fuel Vehicle Program

The City of San Jose has an active alternative fuels vehicle replacement program involving compressed natural gas and electric vehicles. The City is demonstrating the effectiveness of several different types of alternatively fueled vehicles. The vehicles will have less of an impact on our environment and air quality than conventional gas and diesel vehicles, reducing an estimated 8 tons of air pollutants each year. Currently the City has 97 alternative fuel vehicles and expects delivery of 15 more vehicles by the end of the current calendar year. The city's vehicle fleet includes both dedicated and bi-fuel vehicles powered by compressed natural gas, electricity and methanol.

Grant funding for the program has been obtained from AB434 grants through the Bay Area Air Quality Management District and the Valley Transportation Agency Congestion Management Program. Cities and towns in the South Bay are working together with Pacific Gas and Electric under the name of the *South Bay Clean Cities Coalition (SBCCC)* to reduce vehicle emissions and improve urban air quality. The SBCCC is part of a nationwide *Clean Cities* effort coordinated by the Department of Energy to expand the use of alternatives to gasoline and diesel fuel. Local South Bay municipalities have worked to create and carry out plans at the local level for establishing a sustainable regional alternative fuels market.

***Goals***

The key goals of the Alternative Fuel Vehicle (AFV) Program are to:

- Gain operational experience regarding the most suitable alternate fuel vehicles for fleet acquisition that conform to State and Federal clean air requirements.
- Determine the potential for reduced long-term operational (fuel) and maintenance costs; and
- Meet *San Jose 2020* goals to maintain acceptable levels of air quality for the residents of San Jose.

***Benefits***

The Alternative Fuel Vehicle Program provides significant health benefits, improves air quality and reduces greenhouse gas emissions.

***Lessons Learned***

The AFV Program has resulted in the City gaining considerable experience in the procurement, operation, maintenance, and fueling of clean air vehicles. The City is a nationally recognized leader in the introduction of clean fuel technologies and forging public-private sector partnerships designed to facilitate the proactive introduction of new vehicle technologies.

## 2. Traffic Signal Management Programs

Traffic Signal Management Programs (TSMP) reduce fuel use by limiting the number of starts and stops at signalized intersections. The City of San Jose has undertaken such a program and has upgraded much of its traffic signal network to a state-of-the-art system. Nearly 75% of the City's signals have been synchronized through the TSMP program. As a result, City staff addresses traffic congestion by:

- developing coordinated groups of signals for morning, midday and evening commutes;
- monitoring the operation of traffic signal equipment to improve response times for maintenance and repair;
- manually controlled traffic signals for event traffic management operations, and;
- observation and modification of signal operations in real time via a graphical interface.

***Goal***

The key goals of the Traffic Signal Management Program are to reduce congestion along major traffic corridors and decrease air pollution.

***Benefits***

- Efficient vehicle movement throughout the City.
- Decreased fuel usage for vehicles traveling through coordinated intersections.

- Reduced commute times.
- Reduction of accidents due to fewer stop and go movements.

***Major Accomplishments***

Of San Jose's 700 traffic signals citywide, currently 516 traffic signals are on-line. Many of the non-interconnected signals are planned for connection in future phases of the TSMP program. The remaining intersections are located at distances where interconnection is not economical, nor beneficial. The TSMP project is estimated to reduce vehicle operating costs by $25 million annually. This effectively reduces the estimated fuel usage by 7.5 million gallons, resulting in a reduction in the emission of carbon monoxide (1,700 tons/year), hydrocarbons (115 tons/year), and nitrous oxide (130 tons/year). The estimated reduction in stops and delays is estimated at 16 percent.

### 3. Ecopass & Subsidized Transit Passes

Approximately 3,700 unlimited use "Ecopass" transit passes have been issued to all interested full and part-time San José civil service employees who desire them. The passes are good on all Valley Transit Authority transit options. By providing the Ecopass the City hopes to increase transit awareness and use among City employees. The City also provides a $10 monthly subsidy for transit passes on several additional transit systems, such as CalTrain and bus services to Santa Cruz County.

***Goals***

The key goals of the Ecopass & Subsidized Transit Passes program include the following:
- To increase ridership on the VTA and other transit systems that deliver people to San José.
- To reduce reliance on automobiles for city employees

***Benefits***
- Reduction in Vehicle Miles Traveled (VMT) throughout San José.
- Reduced demand on highways and surface streets.
- Reduced parking demand.
- Reduction in air and water pollutants.
- Reduced dependency on fossil fuels.

***Major Accomplishments***

Data is still being collected on the effects of this program on traffic and ridership, however the program has been very popular with City employees.

### 4. CNG Vanpool Program

Through grant funding from California AB 434, the City has acquired two compressed natural gas vans that are being used as vanpool vehicles for up to 15 people on long-distance commute corridors. By day these vehicles will be used as regular City pool vehicles. This has the duel effect of reducing congestion on impacted commute corridors and reducing greenhouse gas emissions.

***Goals***

The key goals of the CNG Vanpool Program include the following:
- To provide two Van Pools for long distant commuters.
- To reduce reliance on automobiles for city employees.

***Benefits***
- Reduction in Vehicle Miles Traveled (VMT) throughout San José.
- Reduced demand on highways and surface streets.
- Reduced parking demand.
- Reduction in air and water pollutants.
- Reduced dependency on fossil fuels.

***Major Accomplishments***

The program will be placed into operation shortly.

## 5. Preferred Parking Locations for Carpools and Vanpools

Preferential no-cost parking locations are provided near City Hall for designated personal carpool and leased vanpool vehicles.

***Goals***

The goal of Preferred Parking Locations for Carpools and Vanpools is to increase the percentage of City employees that use car and van pools

***Benefits***
- Reduction in Vehicle Miles Traveled (VMT) throughout San José.
- Reduced demand on highways and surface streets.
- Reduced parking demand.
- Reduction in air and water pollutants.
- Reduced dependency on fossil fuels.

***Major Accomplishments***

Increase in the number of employees that are Car and Van pooling

## 6. Guaranteed Ride Home Program

This program assures emergency transportation for employees that use commute alternatives (do not drive alone) to get to work. Taxi service is provided to these employees in the event that they encounter a work or personal emergency that requires immediate and/or unanticipated transportation needs to their home or other destinations related to the emergency. This help dissuade the fear of being caught at work without a way home in an emergency.

***Goals***

The key goal of the Guaranteed Ride Home Program is to provide a safety net for those that do use alternative forms of transportation so that in emergencies they can make it home.

***Benefits***

This program is projected to increase the willingness of city employees to try alternative forms of transportation by providing a sure way home in case of an emergency.

***Major Accomplishments***

This program has been in effect for over a year and it has been effective in encouraging transit use.

***Lessons Learned***

There is a need to provide a consistent secure method for obtaining emergency forms of transit for after hours emergencies. There is also a need to continue education about the program and how to access the services.

## 7. Silicon Valley Smart Corridor

The Silicon Valley Smart Corridor Project aims to alleviate congestion along a 15 mile stretch of SR 17/I-880 in Santa Clara County. The project involves the installation of a multi-jurisdictional Traffic Management System, which when completed, will allow rapid and appropriate response to incidents on the freeway. The Silicon Valley Smart Corridor uses advanced technologies and real-time system management techniques to help keep all transportation facilities within the Highway 17/I-880 corridor operating at maximum efficiency, even following a major disruptive incident.

***Goals***

The goals of the Silicon Valley Smart Corridor system are to improve efficiency, safety, and throughput of the freeway and adjacent surface street network and to reduce traffic congestion and motorist delay.

***Benefits***

- Immediate detection and verification of incidents.
- Effective and timely management of incidents and unusual congestion.
- Reduction in secondary accidents resulting from incident-related congestion.
- Single and consistent source of information about all facilities and travel options for motorists.
- Reduction in stop-and-go traffic and fuel consumption of vehicles as a direct result of inter-jurisdictional coordinated signal groups.

***Major Accomplishments***

A major accomplishment of this project revolves around the cooperative interaction between the ten agencies involved. The Smart Corridor concept requires cooperation between the agencies that operated the different transportation facilities in order that information collected by any one agency is available to all agencies, the action of any one agency are coordinated and known to the others, resulting in a seamless travel experience for motorists.

Upon completion of the project, the following elements will have been installed:

- A corridor exchange network of fiber optic cable to support video and data communications;
- a data exchange network among the ten participating agencies;
- traffic responsive signal coordination capable of dynamically changing signal timing in groups of signals that span jurisdictional boundaries based on real-time fluctuations in traffic conditions
- dynamic message signs on arterial streets and the freeway which provide direct information to motorists;
- CCTV cameras on arterial streets and the freeway which provide for visual monitoring of traffic conditions;
- video display and control equipment at agency traffic management centers.

## 8. LED (Light Emitting Diode) Traffic Signal Light Program

The City of San Jose tested Early-Development Light Emitting Diode (LED) traffic signal indicators for five years. Initially, the units did not meet manufacturer's claims for longevity, but did provide substantial energy savings. Today, the technology has advanced and the units are more reliable and provide improved energy savings. Caltrans has approved the use of red LEDs and San Jose has initiated a program to replace all of its red incandescent traffic signals and pedestrian signals with Caltrans-approved LED signals.

### *Goal*

The goals of the LED program are to reduce energy consumption, and to reduce the level of maintenance required for the City's traffic signal inventory.

### *Benefits*

The red traffic signal indication only uses 10% of the energy of an incandescent lamp. San Jose's monitoring of actual energy billings showed an average energy savings of 45.5% for all affected intersections during the test period.

### *Major Accomplishments*

The Department of Streets and Traffic has begun a program to replace all incandescent red light and Portland Orange walk symbols at intersections citywide. Approximately 50% of all signals will be re-lamped by the end of Fiscal Year 1997-98. The remaining lights will be replaced by December 1998. This program will provide a significant cost and energy savings for the City, and improve safety at intersections.

## ECONOMIC DEVELOPMENT

The City of San Jose currently supports businesses that take an extra environmental step toward sustainability in the industrial and commercial sectors.

| Programs | Responsible Departments |
|---|---|
| 1. Recycling Market Development Zones | Environmental Services Department |

### 1. Recycling Market Development Zone

The Recycling Market Development Zone (RMDZ) is a revolving Loan Program set up to assist business that use materials that would normally be disposed on in solid waste landfills. Using the low interest loans from the California Integrated Waste Management Board, the City has worked with area companies to provide loans for working capital, site improvements, equipment purchases.

#### *Goals*

The key goals of the Recycling Market Development Zone include the following

- Use the revolving loan fund as a market development tool for funding of projects which use materials normally are disposed of in solid waste landfills.
- Support the California Integrated Waste Management Board's current Market Development Plan by giving priority consideration to projects that utilize the Board's priority materials and divert the greatest tonnage.
- Support the integrated waste management hierarchy by promoting, in order of priority 1) source reduction; 2) recycling and composting; 3) environmentally safe transformation and environmentally safe land disposal.

#### *Benefits*

Increased use of recycled materials increases diversion form San José landfills, helping the city to meet California AB 939 goals for the year 2000.

#### *Major Accomplishments*

As of February 1997, four loan agreements have been enacted with area companies. The types of companies include manufacturers of recycled corrugated packaging, dismantlers of computers into its component parts and sale of those parts for reuse, and a processing recovering plant that recovers residual metals and plastics from plastic/rubber insulated wire.

## ENVIRONMENTAL COMPLIANCE PROGRAM

This program oversees City facilities and projects and verifies that they are operated in compliance with Federal, State and Local environmental regulations. This involves overseeing proper data collection, investigation and permitting of city services. This program also includes the senior public health official for the City. Some of the duties under this program include: monitoring of proper use and disposal of hazardous materials at City Service yards, investigation of property acquired by the city for contamination, management of ground water monitoring programs, dealing with spills, review of EIRs and proposed developments, and management of closed city landfills and contaminated properties.

### *Goals*

The key goals of the Environmental Compliance Program include the following:

- To verify and assist city departments in complying with environmental regulations.
- To identify and remediate potential or current contaminated sites.

### *Benefits*

By taking a proactive role in monitoring City sites, the City is able to avoid or lower future costs associated with clean up of those sites. Proper documentation and permitting is necessary for maintaining appropriate uses, handling and storage of potential contaminants on city sites.

### *Major Accomplishments*

The Program's major accomplishment is its success at remediating sites on a case by case basis. The program has successfully managed the city's five closed landfill sites and deals with unanticipated problems as they arise.

### *Lessons Learned*

The history and development of the Environmental Compliance program have validated the value of preventive programs in controlling future costs, both environmental and economic, to the City.

## LEGISLATIVE REVIEW & ADVOCACY

City staff from various impacted departments review, analyze and recommend City positions on State and Federal Legislation that could impact any of the City's environmental and sustainable city programs. Staff also keeps apprised of changes and activities occurring among the various environmental regulatory agencies.

When appropriate, staff may undertake an advocacy process in cooperation with the City Council, City lobbyists, other local jurisdictions, and professional organizations to influence the best possible solution to legislative and regulatory issues in the areas of the environment and sustainability.

### *Goals*

The goal of the Legislative Review & Advocacy Program is to promote legislation and regulations that will support the City's commitment to a sustainable future. Included among the issues of vital concern:

- Balance environmental concerns with the fundamental health of the local economy;
- Establish State and Federal policies and programs that protect the global environment and have a positive impact on the local environment;
- Provide funding for programs that protect and enhance the environment and sustainability;
- Support legislation that will promote the best use of natural resources to ensure that future urban demands can be met;
- Advocate the setting of environmental standards that are scientifically based and will provide real long-term sustainable benefits.

### *Benefits*

Due to the multiple areas that may be impacted by an environmental or sustainability issues, The Legislative Review and Advocacy Program acts as a means to develop a coordinated City position that will provide the greatest common, long-term benefit for the local community.

### *Major Accomplishments*

- Federal funding for South Bay Water Recycling;
- Maintaining the integrity of AB 939, The California Integrated Waste Management Act of 1989;
- Support for recycling market development;
- State and national recognition of nonpoint sources of pollution such as copper brake pads and urban runoff;
- Acquisition of alternative fuel vehicles;
- Working cooperatively with regulatory agencies to develop flexible alternatives for water quality issues;
- Participation on state and national policy and rulemaking task forces;

- Improved communication with regulatory agencies.

***Lessons Learned***

We've learned that it is vital to have a voice at the local, state and federal levels. Furthermore, it is important to be heard early on, as often as possible and participate on committees and task forces in the initial stages when the concepts are first being formulated to develop future laws and regulations that the City will have to comply with.

## COMMUNITY RELATIONS AND PUBLIC EDUCATION

The Community Relations Division of the Environmental Services Department responds to department and city priorities in fiscal year 1997-1998 by developing, implementing and evaluating outreach campaigns that affect behavior and/or awareness within general and target audiences. Working with ESD staff, Community Relations strives for cost-effective means of coordinating messages among divisions, so that residents and businesses may assimilate important environmental information in an efficient manner.

### South Bay Action Plan

The mission of the South Bay Action Plan, approved by City Council in 1991 and updated in September 1997, is to protect and restore salt marsh habitat for two endangered species, the salt marsh harvest mouse and the California clapper rail, in South San Francisco Bay. To achieve this mission, the City is committed to wetlands mitigation, water recycling, water conservation, public education, and other efforts which reduce the amount of discharge from the San Jose/Santa Clara Water Pollution Control Plant (WPCP) to the salt marshes of the South Bay. ESD continues to pursue public outreach activities in support of South Bay Action Plan implementation. Outreach efforts this past year have focused on South Bay Water Recycling (SBWR), a six-month Flow Reduction Campaign, and the Water Efficiency Program's (WEP's) toilet retrofit incentive offers.

South Bay Water Recycling

SBWR promotion has three primary goals: (1) mitigating the impacts of construction activity to the general public, particularly commuters and those living or working along the pipeline; (2) increasing public acceptance of recycled water; and (3) convincing potential customers to retrofit and use recycled water.

Proactive *Phase 1* marketing actions during the current fiscal year (i.e. community events along the pipeline route, hotline call responses, the distribution of 60,000 newsletters per issue, door-to-door canvassing and a web site) have been successful in keeping the community informed of pipeline construction. These efforts will continue as *Phase I* is completed. Sales support efforts aimed at potential customers have included: a *Business Journal* advertisement thanking committed customers, event and trade show displays, fact sheets outlining the retrofitting process, direct mail, and the posting of customer information on the Internet.

Outreach tactics planned for *Phase 2* include:

- Direct Customer Relations
- Presentations & Events
- Advertising & Public Relations
- Focus Groups
- Additional Marketing

Flows Reduction Campaign

By November 1996, the WPCP was discharging 13 million gallons per day (mgd) more than the daily average dry season water discharge level set by the San Francisco Regional Water Quality Control Board. As a result, a Flow Reduction Campaign was launched during the 1997 dry season (May to October). This major campaign had three goals: (1) to increase awareness of the flow issue, (2) to recommend the best water conservation actions to the public, and (3) to forge a baseline of public understanding about South Bay water issues.

Staff developed the theme and specific messages for the six-month *It's our Bay…Treat it Right* campaign after assessing the marketing research data of a pre-campaign survey and several focus groups. Key components of the multi-media campaign for residents in the WPCP service area were: radio commercials, print advertisements, bill inserts, community events, and media relations.

The post-campaign phone survey showed a high level of public awareness on key points of the campaign. About 23% of the total population said that the advertisements made them think differently about home water use; and the number of people who understood that ultra low-flush toilets (ULFTs) could help save water at home nearly doubled. Survey segmentation analysis showed that future outreach efforts should be directed toward two major groups: (1) residents who generally agree with environmental issues, but have not yet connected water conservation with environmental protection, and (2) residents who feel water conservation costs are too high, but understand the need to protect the environment.

Water Efficiency Program

As part of the South Bay Action Plan's water conservation component, the WEP focused on markets with the highest potential reductions through the installation of ULFTs.

With an objective of achieving 9,000 ULFT installations this year among multi-family dwelling (MFD) property owners, a limited-time, rebate offer of $100 per ULFT toilet was implemented on January 1. The marketing campaign included a brochure and application sent to approximately 3,000 MFD owners, telemarketing follow-up phone calls, two reminder postcards, and advertisements in the *Tri County Apartment Association* magazine. The results far surpassed the original objective: the campaign generated over 14,00 ULFT applications in just two months.

A similar campaign targeting commercial and institutional audiences will be conducted this spring.

Another rebate promotion campaign for single-family residents, offering $75 savings per toilet, is now underway. This campaign, featuring *San Jose Mercury News* advertisements, builds on the awareness developed during last year's Flow Reduction Campaign.

Over the next fiscal year, these rebate promotions will expand to include all sectors of the entire WPCP service area.

Pollution Prevention

The Urban Runoff Management Plan (URMP) and the new Clean Bay Strategy, adopted by City Council in September 1997, outline City responsibilities for compliance with its municipal storm water discharge permit and its National Pollutant Discharge Elimination System permit for operation of the WPCP. Each of these plans contains public education components for pollution prevention. Outreach activities for the current fiscal year have largely focused on heightening awareness of what specific activities in the residential, municipal, and business sectors may cause storm drain pollution and what residents, city employees, and businesses can do to prevent water pollution.

As a first step in promoting public understanding of the relationship between storm drain pollution and neighborhood creeks, ESD has worked with the San Jose Conservation Corps to restencil curbs in San Jose with the new storm drains signs. The new signs feature the storm drain hotline number and the particular creek (one of 16) to which that storm drain water flows. To date, almost 50% of the streets have been restenciled. In January, ESD launched a public education campaign to introduce the new stencils and to explain how residents can protect the storm drain system. The stenciling campaign included a bill insert and newspaper and radio advertisements, with messages delivered in English, Spanish, and Vietnamese.

Other pollution prevention outreach includes:

- Specific targeted efforts regarding illegal disposal of automotive fluids, improper use and disposal of pesticides, and sedimentation due to landscaping activities;
- Training classes and collateral materials to ensure that City operations and construction sites conform to storm water regulations;
- Various forms of outreach to businesses such as a best management practices manual for hospitals and health care facilities, Spanish and Vietnamese versions of the pollution prevention practices brochures for auto dismantlers, body shops, and car washing facilities; a new storm water quality control guide for contractors and home builders; and focus groups to determine how people in industry and small businesses acquire and respond to environmentally beneficial recommendations.

**Youth Watershed Education Team**

For several years, ESD has implemented various youth-oriented projects on water issues. This past year, ESD staff from several divisions formed a team, known as the Youth Watershed Education Team, to oversee those outreach efforts. The team is now involved in: (1) collaboration with City Park Rangers to provide classroom presentations for grades 5 to 7 on water pollution prevention; (2) support of the Children's Discovery Museum's Biosite teacher training program, designed to promote stewardship of the local watershed and the South Bay ecosystem; (3) continued distribution of *It's Wet, It's Wild*,

*It's Water!* teacher packets; and (4) participation in the annual Resources in Environmental Education Fair.

New projects include: (1) a contract with the Don Edwards San Francisco Bay National Wildlife Refuge to staff and conduct a new water conservation component for its youth education program, (2) a collaboration with the Wildlife Refuge to create a watershed map for use at schools and at interpretative centers, (3) a wastewater poster for sixth grade classrooms that shows how water flows from home and schools into sanitary sewer, storm drain, and South Bay Water Recycling pipes.

**Integrated Waste Management**

The goal of ESD's Integrated Waste Management outreach is to divert waste from the residential, business and municipal sectors. While recycling program support remains strong, cultivating understanding and acceptance of the concept of waste prevention is a new outreach challenge.

As Recycle Plus celebrated its fifth year, outreach shifted away from the "how-to" aspects of the program and focused more on the introduction of waste prevention messages. The fall *Mug Shots* campaign stressed that a disposable cup could easily be replaced with a reusable one. Over 200 students participated in the "make a mug" project, and over 500 employees participated in an office waste prevention pilot program.

Waste prevention through home composting is an ongoing outreach effort, and composting bin sales continue to be a priority. Since 1996, residents have bought over 2, 500 compost bins at sales events administered by the San Jose Conservation Corps.

In the business sector, ESD piloted a commercial recycling program at a 200,000-square foot office building. ESD staff consulted with building management staff and tailored recycling accommodations to individual building tenants. Outreach for the pilot program included presentations, desk-side recycling bins, posters for recycling centers, fact sheets and other educational collateral, as well as promotional items for encouraging and rewarding recycling participation. Pilot program results showed overall building waste diversion increased from 38% to 50%.

Now one year old, the municipal Recycle at Work Program continues to educate City staff on recycling and waste prevention issues. Outreach tactics include: site visits, training sessions with custodial staff, signs for recycling sites in City facilities, and regular progress reports articles in *City Line*. Thus far, garbage volume has been reduced by half at City Hall and at the Police Administration Building.

Next fiscal year, civic outreach efforts will promote the indoor and outdoor public area recycling bins planned for the downtown area, the Airport, the Convention Center, neighborhood parks, and business districts.

**ESD Web Site**

This fiscal year, ESD staff produced a new communication tool to increase public access to department service information—the ESD web site. The public can now access information on Integrated Waste Management, the Municipal Water System, South Bay Water Recycling, wastewater treatment, water conservation, and storm water runoff.

ESD plans to complete uploading of all the information planned for the site during the next fiscal year. Staff will actively promote Internet use by listing the ESD web site address in outreach materials and publicizing the site through such Internet mechanisms as linkages and search engines.

## III. PARTNERSHIPS

The development of partnerships has become an increasing part of the day-to-day activities of leaders concerned with economic development, environmental quality, resource conservation and sustainable development. This is no less true within the City of San Jose. The City has established an number of collaborative and successful environmental partnerships with a variety of international, national and regional entities.

### International Council on Local Environmental Initiatives --Cities for Climate Protection

The International Council for Local Environmental Initiatives (ICLEI) is the international environmental agency for local governments. ICLEI was established in 1990 through a partnership of the United Nations Environment Programme, the International Union of Local Authorities (IULA), and the Center for Innovative Diplomacy.

ICLEI's PURPOSE AND MISSION

- To serve as an international clearinghouse on sustainable development and environmental protection policies, programs, and techniques being implemented at the local level by local institutions.
- To initiate joint projects or campaigns among groups of local governments to research and develop new approaches to address pressing environmental and development problems.
- To organize training programs and publish reports and technical manuals on state of the art environmental management practices.
- To serve as an advocate for local government before national and international governments, agencies and organizations to increase their understanding and support of local environmental protection and sustainable development activities.

ICLEI members include more than 240 local governments of all sizes from around the world, all of whom share a common purpose: to take a leadership role in identifying and implementing innovative environmental management practices at the local level. San Jose is a member of ICLEI.

The **Cities for Climate Protection Campaign** (Campaign) is an outgrowth of the ICLEI Urban CO2 Reduction Project. ICLEI began the Campaign to help cities reduce greenhouse gas emissions and reap the multiple benefits that result from increasing energy efficiency. The Campaign promotes policies and program that protect the global environment and produce tangible benefits for the city and its residents.

The goals of the campaign are to:

- strengthen local commitment to reduce greenhouse gases;
- utilize management and planning tools developed by ICLEI to determine local energy use and develop strategies for conservation;
- promote best practices to reduce energy use in buildings and transportation; and

- enhance national and international ties through a collective voice for municipalities.

The Cities for Climate Change Protection Campaign, conceived in January 1993 at the first Municipal Leaders summit on Climate Change held at the United Nations in New York, began in 1994 with support from the US Environmental Protection Agency and the German Marshall fund of the United States. To date, ninety municipalities, mostly located in North America and Europe, have joined the campaign. Collectively they have a population of 50 million and emit CO2 emissions totaling about 550 megatonnes (Mt) annually. Many have adopted local action plans and are presently implementing measures to reduce energy use at the urban level. As a member of the Campaign, the City of San Jose joins those cities and municipalities who are seriously engaged in promoting energy efficiency and providing leadership within their communities in the area of sustainable development.

**President's Council on Sustainable Development**

The President's Council for Sustainable Development (PCSD) was established in June 1993 to develop a national strategy for meeting the needs of the present without compromising the opportunities of future generations. Councilmembers included leaders from government, business, environmental, civil rights, labor and Native American organizations. For three years, the Council held public meetings at locations around the country, including here in the Bay area. Several of San Jose's Councilmembers were able to make presentations to the Council when there held their bay area meeting. Current efforts include the establishment of a regional council for Sustainable Development within the Bay Area.

**Bay Area Alliance for Sustainable Development**

The Bay Area Alliance for Sustainable Development (Alliance) is a multi-stakeholder coalition which will develop and implement an action plan that will lead to a more sustainable Bay Area in the future – a Bay area where the economy continues to prosper, where environmental quality is improved and where citizens have the opportunity to share in the benefits of a quality environment and prosperous economy.

The Alliance is an outgrowth of the work of President Clinton's Council on Sustainable Development and seeks to exemplify the theme in the PCSD report *Sustainable America – A New Consensus* that a sustainable America can only be achieved by creating sustainable communities.

The Alliance has a leadership team representing the business, environmental, governmental and social equity sectors. The Alliance believes it may serve as a model for other communities throughout the nation because of the economic, social and environmental diversity of the Bay Area, and recognizes that its success will depend on unprecedented levels of inter-sectoral and inter-jurisdictional cooperation and collaboration.

## Federal Program Partnerships

San Jose has entered in partnerships with several initiatives developed by federal agencies.

*U.S. Department of Energy (DOE)* -Clean Cities/South Bay Clean Cities Coalition

Clean Cities is a locally-based government/industry partnership, coordinated by the U.S. Department of Energy (DOE) to expand the use of alternatives to gasoline and diesel fuel. This has been done by working with local decision-makers within the South Bay to create and carry out effective plans at the local level for establishing a sustainable, nationwide alternative fuels market. The program assists South Bay local government organizations with acquiring Alternative Fuel Vehicles.

*U.S. Environmental Protection Agency (EPA)* - Green Lights

The U.S. EPA's Green Lights Program is a voluntary, non-regulatory program aimed at promoting energy efficiency through investment in energy-saving lighting. The program saves money for businesses and organizations, and it creates a cleaner environment by reducing pollutants released into the environment.

The San Jose Green Lights program was initiated in September of 1994 with the signing of a Memorandum Of Understanding (MOU) between the City and the US Environmental Protection Agency (EPA). The City agrees to survey its public buildings for energy efficient lighting projects, and where feasible, inefficient lighting components are eventually replaced by efficient lighting equipment. In return, the EPA offers technical assistance and formal recognition of program participation to the City. The City also becomes a partner in marketing the Green Lights Program to its constituents, e.g., local businesses. The City has been designated as a Green Lights Partner by the (EPA), with PG&E as its ally in the program. PG&E offers rebates for implementing energy efficiency in lighting. Through the Green Lights Program, City employees are also encouraged to adopt energy-conscious behaviors such as shutting off computers, copiers, and other equipment at the end of the day. Behavioral measures cost nothing, yet can provide considerable energy cost saving of over $60,000 per year.

*Environmental Protection Agency* - Transportation Partners

The Transportation Partners Program of EPA supports community transportation solutions across the country through information services, technical assistance and recognition. San Jose has been recognized as contributing to its jurisdiction's environment, economic health and sense of community by adopting land use policies that encourage transit, bicycle and pedestrian-oriented development and redevelopment.

## Urban Consortium

With a membership composed of leaders from 50 of the nation's largest cities and counties, Public Technology's[3] Urban Consortium is a partnership for change. San Jose has been a member of the Urban Consortium for almost twenty years and has representatives on each of the Task Forces. Each year, the Urban Consortium collectively develops a priority list of pressing problems and applied research projects. Local government officials then develop technology innovations and new management approaches by participating in program-specific task forces. Frequently, projects result in development of a variety of products (such as guidebooks, or workshops) and programs which save money, increase local revenue, and improve services.

The *Energy Task Force of the Urban Consortium* (UCETF) was established to address critical energy needs of urban America. The UCETF acts as a laboratory to develop and test solutions and share the resulting products or management approaches with the wider audience of local governments. For twenty years, the UCETF has been a leader in developing local strategies responsive to the national energy situation and critical environmental concerns.

For almost twenty years, the City of San Jose has benefited from being a part of the UCETF by receiving U.S. Department of Energy (DOE) grant programs administered by the UCETF. Many of the City's energy programs were possible because of these grant monies (Municipal Energy Management Program-MEMP). Examples of DOE funding of City of San Jose Programs include the following:

- Innovative Energy Design and Analysis Service
- Sustainable City Energy Planning
- Municipal Choices in the Electric Industry Restructuring Market
- Development of the Power Savings Partners contract with PG&E.

The Urban Consortium *Environmental Task Force* (UCEnvTF) was established in 1988. The task force applies the technology, resources, and experience of cities and counties to develop, test and disseminate innovative, enterprising, and sustainable environmental solutions that protect natural systems, improve public health, and encourage economic vitality.

PTI's newest research program is in the area of transportation. Local government officials joined to form the Urban Consortium *Transportation Task Force* (UCTrTF) in an effort to reduce congestion, improve transportation in cities and counties. The task force is currently focusing on educating local governments on the benefits of intelligent transportation systems (ITS).

The Urban Consortium *Telecommunications and Information Task Force* (UCTITF) was created in 1987 to bring together senior-level officials in telecommunications and information to develop better management approaches through the use of information technology.

[3] Public Technology Inc. is the research and technology arm of the National League of Cities, National Association of Counties, and International City/County Management Association.

## IV. OPPORTUNITIES

The City has an expansive array of programs and projects that support and enhance the Sustainable City Major Strategy. Any review of current programs will always allow for the consideration of additional and/or expanded programs to be able to respond to current needs and opportunities. The following is an initial listing of opportunities that could be undertaken by the City.

### *Promoting Community Dialogue on Sustainability for San Jose*

Involving the community in the analysis of development and related service issues is essential to the optimal solution of problems. Municipal investments are more likely to succeed and win public support if they are responsive to the articulated needs, concerns, and preferences of the communities. City strategies can also benefit from the knowledge and resources that local residents and institutions can themselves contribute to solving problems. At the same time, the process of issue analysis can be used to educate stakeholders about technical conditions and constraints for service delivery, such as ecosystem carrying capacities or financial constraints.

The City of San Jose has an exemplary record of involving the public, and soliciting their input. The "Town Halls in the Neighborhoods" and the involvement of the community in the development and adoption of the City's General Plan and Water Policy are examples of this outreach and dialogue.

More recently, the development of the Santa Clara Basin Watershed Management Initiative, with over twenty key stakeholders involved, clearly points out the interest within the community to identify, address, and work towards common solutions for the city's environmental problems.

Making continued progress towards sustainability will require a systematic evaluation of whether our actions and strategies are adequate and whether they are having the desired effect. The opportunities exist to engage the community in a dialogue about our progress to date, an evaluation of our policies and programs, and the identification of next steps in the process. Preliminary meetings within the community have resulted in the identification of next steps on the path toward sustainability for San Jose. Those next steps include the establishment of a community process that would identify issues, develop goals and establish priorities. San Jose residents were also interested in the establishment of methods and tools, such as Sustainability indicators, that would measure the performance of the community as a whole in achieving its goals and targets.

Several opportunities exist for working within the community, both on a local and regional basis. These include working with a growing number of community groups and churches who are currently exploring the meaning of sustainability and environmental stewardship, and actions that can be taken by individuals. On a regional level, there is the possibility of working with the Bay area sustainability organizations to establish a regional council on sustainable development. This would involve working with cities, counties, business and environmental organizations, such as Sustainable San Francisco

and the Association of Bay Area Governments, building on the work of the President's Council on Sustainable Development

### *Establishing Sustainable Indicators*

The well-being of a community or nation can be measured in many ways. Traditional measurements often analyze a single issue by itself, such as the number of new jobs in a particular community. New measurements called "Indicators of Sustainability" are designed to provide information for understanding and enhancing the relationships between the economic, energy use, environmental, and social elements inherent in long-term sustainability.

Indicators serve as valuable tools for profiling local energy consumption patterns as a sustainability benchmark. Communities such as Seattle, San Francisco, and Toronto are using indicators to gather and evaluate information on both current energy use and future alternatives for the residential, commercial, industrial and transportation sectors. This information is vital in planning for and managing the energy resources that will support sustainable development.

The role of an indicator is to make complex systems understandable or perceptible. An effective indicator or set of indicators helps a community determine where it is, where it is going, and how far it is from chosen goals. Indicators of Sustainability examine a community's long-term viability based on the degree to which its economic, environmental, and social systems are efficient and integrated.

To measure the degree of efficiency and integration, a set of numerous indicators is often required. These indicators can incorporate several broad categories such as Economy, Environment, Society/Culture, Government/Politics, Resource Consumption, education, Health, Housing Quality of Life, Population, Public Safety, Recreation, and Transportation.

Sustainability is an issue for all communities, from small rural towns that are losing the natural environment upon which their jobs depend, to large metropolitan areas where crime and poverty are decreasing the quality of life. Indicators measure whether a community is getting better or worse at providing all its members with a productive, enjoyable life, both now and in the future.

Within the San Jose area, several efforts are underway to establish and identify various types of indicators for our community:

- Within the Environmental Services Department, baseline indicators were established in 1996 for the following categories: population and housing; economics, land use, water use, water quality, waste management, energy, transportation, and air quality.
- San Jose State University's Department of Environmental Studies has expressed an interest in partnering with the City's Environmental Services Department on an undergraduate or graduate level research project. Their specific focus would be on

energy efficiency, and an evaluation of the associated benefits of the city's energy efficiency programs.

- Joint Venture's *Index of Silicon Valley* provides a set of indicators tracking the region's economy and quality of life. The *Index* is an ongoing effort to track progress toward a 21st century community.
- "Working Partnerships USA" is looking to develop an *Alternative Economic Indicators Project.* Possible categories that they seek to develop include economic, social equality and public participation indicators.

The usefulness and accuracy of Indicators of Sustainability depends on their ability to create a "snapshot" of the community's economic, environmental, and social systems. Choosing the appropriate indicators and developing a program is a large-scale process requiring collaboration between many sectors including government agencies, the public, research institutions, civic and environmental groups, and business.

A sustainable community means many things to the different people who live there. To business owners it means a healthy economy so that their businesses have a place in which to create and sell their products. To parents it means a safe environment in which to bring up their children. Everyone wants a secure, productive job to support themselves. Everyone needs clean air to breathe and clean water to drink.

Discovering the needs of the community and finding ways to meet those needs is not difficult but it does require some effort. It begins by deciding what your sustainable community would look like. There are as many different ways to create a vision as there are communities that have done so. What is most important is that the vision be created by the entire community: the well-to-do and those living in poverty, business owners and union workers, young and old.

Just as important as knowing what a community wants to become is knowing how to reach that goal. We need ways to tell whether the decisions we make are increasing or decreasing the overall health of our communities. Indicators of sustainability give us a practical way to measure our progress toward sustainable communities.

### *Integrated Waste Management Opportunities*

Waste management technologies have developed rapidly during the '90's. Lead by European initiatives with the world's most stringent waste reduction programs, technologies now exist to drastically improve the City's input to waste disposal sites.

Waste Processing

The collection of solid waste tends to be the dominant portion of waste management program costs. Complex waste sorting schemes require specialized collection equipment and more time on the street for that equipment. In many locations, minimal source separation combined with material processing is achieving the best combination of low program cost and high diversion rate. San Jose's residential waste collection program is in the position to take advantage of this by separating its waste collection and waste processing contracts. Waste collection contracts can be used to define the most efficient

and lowest cost material sorting specification that perfectly integrate with its contracted processing capacity.

Commercial waste management also stands to benefit from augmented waste processing technology. Many commercial waste generators find they are limited in their recycling opportunities if the program depends on source separation for success. Due to common limitations in storage space, employee time available to operate separation programs, and expense incurred from moving and storing separated materials, many businesses simply abandon any type of recycling program, often despite a will to recycle within the company. The development of mixed material processing and recovery facilities offers the best opportunity to expand commercial recycling.

ESD/IWM is reviewing a system of fee collection that creates economic incentives for haulers to take advantage of processing. Under this concept, loads of material taken to a recovery processing/recovery facility would receive a discount on City fees owed based on the recovery rate of the processor. Such a system has the potential to continuously increase the level of material diversion from the economic incentives available to haulers and processors. This only occurs when there is an open market for processing capacity. This open market is currently not in place and may require direct action by the City to create it.

The movement toward developing adequate waste processing capacity must be addressed as part of the City's master plan. As land development continues in San Jose, there are fewer and fewer sites left that are appropriate for processor siting. The City will need to move soon to secure locations for future development of processing capacity. Failing to do so may ultimately leave the City in a position of having to export waste materials to other locations for processing or disposal. Dependence on such outside sources of vital services does not support the City's sustainability.

**MSW Digestion**

Much of the solid waste stream is made up of organic materials. Such material represents a public health threat if not properly handled and is most typically landfilled. A newer approach takes advantage of natural decomposition processes. Anaerobic digestion offers the opportunity to generate energy while producing high quality soil amendment from organic solid waste. Most heavily used in Europe, the technology for digestion is advancing rapidly. Currently, the cost of building a digestion plant exceed its revenue from energy, soil amendment product, and avoided disposal costs. However, if energy or landfilling prices should increase, digestion could rapidly become an economically viable alternative to disposal. From a pure sustainability point of view, this is optimal technology to employ in the management of organic solid waste. IWM will continue to monitor the development of digestor technology for application in San Jose.

***The Bay Area Council for Sustainable Development***

The President's Council for Sustainable Development (PCSD) was established in June 1993 to develop a national strategy for meeting the needs of the present without compromising the opportunities of future generations. Councilmembers included leaders from government, business, environmental, civil rights, labor and Native American organizations. For three years, the Council held public meetings at locations around the

country, including here in the Bay area. Several of San Jose's Councilmembers were able to make presentations to the Council when there held their bay area meeting.

One of the implementation recommendations from the President's Council (PCSD) is to assist in the development of regional councils as a way to strengthen communities and enhance their role in decisions about environment, equity, natural resources and economic progress.

The Bay area PCSD members, (Richard A. Clarke, Chairman and CEO, Pacific Gas and Electric/retired, and Michele A. Perrault, International Vice President, Sierra Club) are seeking to have the Bay area identified as one of the regional councils for sustainable development. Working with the Association of Bay Area Governments (ABAG) and key decisionmakers from throughout the Bay area, they hope to explore possible areas of collaboration.

The Alliance seeks to:
- Identify major issues that affect sustainability in the Bay Area.
- Focus on the inter-relationship between air quality in the Bay Area and transportation, housing, environmental quality, and economic prosperity.
- Establish and publish a series of indicators for both the Bay Area region as a whole and for local governments individually to help measure progress towards a sustainable Bay Area community.

***Green Building Opportunities***

Green building programs are designed to promote building practices that minimize the negative environmental impacts associated with construction. They also seek to reduce the operational impacts associated with a building's continued consumption of resources. Green building programs address: energy, water conservation, building materials, indoor air quality, solid waste management and site impacts. Green building programs strive to develop and implement a comprehensive view of design and construction practices and assess their overall environmental impacts. This requires an integrated design approach where there is communication between all those involved in the process.

There are many Green Building Programs across the country that seek to minimize the environmental impacts and make buildings as efficient as possible. They have been started by local governments, Home Builders' Associations and Utilities, and other non-profit organizations.

A survey was conducted by the Environmental Services Department in the fall of 1997 among architects within the Santa Clara Valley to determine their awareness and interest in Green Building techniques. Within the survey, the questions was asked of respondents as to their interest in furthering green building techniques within the Silicon Valley. Several architects expressed an interested in continuing the dialogue on green building.

The City of San Jose - Environmental Services Department will be holding a "Green Building Dialogue" on July 2, 1998. We anticipate up to twenty to thirty key stakeholders concerned with building issues to be invited to this dialogue. Key stakeholders would include the following:

- Architects
- Builders
- Developers
- Housing Group Representatives
- Local Government Officials (Housing, Redevelopment, Planning, etc.)
- Bank and Financial Entities
- Building & Construction Trades
- Realtors
- Hardware/Material Suppliers

The agenda for the half-day workshop would include a background on current green building activities and participants (presented by the U.S. Green Building Council), Available Resources (U.S. Department of Energy - ReBuild America, Million Solar Roofs Program and the Buildings for the 21st Century), and local activities (Turner Construction, Home Building Association of Northern California, City of San Jose).

The workshop would allow the opportunity for participants to determine if there is any further interest in developing a Green Building Program within the Silicon Valley area, the identification of any opportunities to incorporate green building techniques and materials within proposed buildings and developments, and the need to continue to provide additional information through the establishment of an area "green building network" or coordinating a green building trade show/fair to provide more information to area builders, developers and educators.

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